Medical TIMES

THE JOURNAL OF GENERAL PRACTICE

VOL. 81 NOVEMBER 1953 NO. 11

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the therapeutic multivitamin tablet with B_{12} and no fish oil

In the smallest, most potent tablet of its kind, OPTILETS offer new convenience in multivitamin therapy. One compressed, easy-to-swallow OPTILET provides six synthetic vitamins *plus 6 mcg. of* B_{12}. With synthetic A, there's no fish-oil odor, taste or "burp." Tablets—not capsules—OPTILETS can't leak, won't stick together. One or more daily is the therapeutic dose. Sugar-coated OPTILETS are available in bottles of 50, 100 and 1000 vanilla-flavored tablets. Cost no more than ordinary therapeutic formula vitamins. Abbott

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Vitamin A (Synthetic Vitamin A Palmitate)	25,000 U.S.P. units
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Riboflavin	5 mg.
Nicotinamide	150 mg.
Vitamin B_{12} (as vitamin B_{12} concentrate)	6 mcg.
Ascorbic Acid	150 mg.

Optilets

(Abbott's Therapeutic Formula Vitamin Tablets)

1-123

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in syringe
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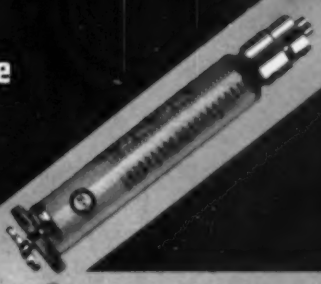

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When you use B-D MULTIFIT Syringes, you get

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sizes now available:
2 cc. and 5 cc.—LUER-LOK® or Metal Luer tip

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B-D, MULTIFIT and LUER-LOK, T. M. Reg. U. S. Pat. Off.

Value of

INJECTION BICILLIN®

Dibenz/lethylenediamine Dipenicillin G

in therapy of streptococcic infections

Root of the rheumatic fever problem

"The early and adequate treatment of upper respiratory tract infection of streptococcic origin almost eliminates the possibility of a rheumatic attack."[1]

Results most satisfactory

In a study of 1,204 beta hemolytic streptococcic infections, Breese reported that adequate penicillin blood levels, maintained for a week or longer, clear the throat of streptococci and prevent recurrent infections. Bicillin, wrote Breese, ". . . seemed to accomplish these results in the home most satisfactorily."[2]

Low incidence of side effects

Worthy of attention is the fact that there were only 6 reactions in studies reporting 3,159 injections of Bicillin, an incidence of about 0.2%.[3,4] Because it produces penicillin blood levels lasting two weeks and longer, Bicillin therapy means fewer injections and consequently less trauma to the patient.

SUPPLIED:

1 cc. Tubex®, 600,000 units (approximately 600 mg.) per cc.

10 cc. multiple-dose vials, 300,000 units (approximately 300 mg.) per cc.

References: *1. Primer on the rheumatic diseases; prepared by a committee of the American Rheumatism Association. Special article: J.A.M.A.* **152**:*323 (May 23) 1953. 2. Breese, B.B.: J.A.M.A.* **152**:*10 (May 2) 1953. 3. Stollerman, G.H.: J.A.M.A.* **150**:*1571 (Dec. 20) 1952. 4. O'Brien, J.F., and Smith, C.A.: Am. J. Syph., Gonor. & Ven. Dis.* **36**:*519 (Nov.) 1952.*

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CONTENTS

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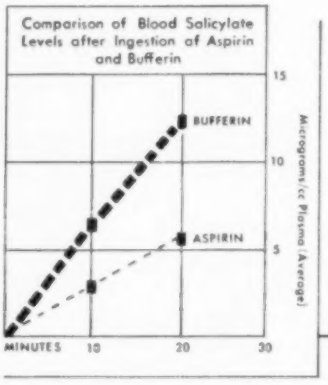
Faster Pain Relief with BUFFERIN®

1 ACTS TWICE AS FAST AS ASPIRIN

The antacids in Bufferin speed its pain-relieving ingredients through the stomach and into the blood stream. Actual chemical determinations show that within ten minutes after Bufferin is ingested blood salicylate levels are higher than those attained by aspirin in twice this time.[1]



2 DOES NOT UPSET THE STOMACH

Bufferin's antacid ingredients protect the stomach against aspirin irritation. This has been clinically demonstrated on hundreds of patients.

in usual doses

In a series of 238 cases, 22 had a history of gastric distress due to aspirin but only one reported any distress after taking 2 Bufferin tablets (equivalent to 10 grains of aspirin).[1]

in large doses

In a recent study group, 1006 patients received, over a 24 hour period, 12 Bufferin tablets (equivalent to 60 grains of aspirin). Although 72 had a history of being sensitive to aspirin, only 18 reported any gastric side-effect with Bufferin.[2]

1. Effect of Buffering Agents on Absorption of Acetylsalicylic Acid. J. Am. Pharm. Assoc., Sc. Ed. 39:21, Jan. 1950
2. Gastric Tolerance for Aspirin and Buffered Aspirin. Ind. Med. 20:480, Oct. 1951

INDICATIONS: Simple headaches, neuralgias, dysmenorrhea, muscular aches and pains, discomfort of colds and minor injuries. Particularly useful when gastric hyperacidity is a complication. Useful for relieving pain in the treatment of arthritis.

EACH BUFFERIN TABLET contains 5 grains of acetylsalicylic acid, together with optimum amounts of the antacids aluminum glycinate and magnesium carbonate.

AVAILABLE in vials of 12 and 36 tablets and in bottles of 100. Tablets scored for divided dosage.

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PRESCRIBE NEOHYDRIN whenever there is retention of sodium and water except in acute nephritis and intractable oliguric states. You can balance the output of salt and water against a more physiologic intake by individualizing dosage. From one to six tablets a day, as needed.

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Leadership in diuretic research

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MEDICAL BOOK NEWS

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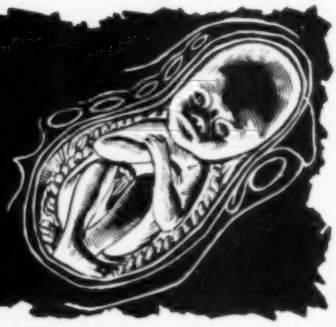
with des or desPLEX



TWO DEPENDABLE PRODUCTS FOR LIFE *in* THREATENED ABORTION, HABITUAL ABORTION AND PREMATURE LABOR

des, the only micronized, triple crystallized (Grant Process) Stilbestrol (U.S.P.) Tablets—used in the treatment of pregnant women, with a history of one, two or more abortions—***averaged 96% normal live babies delivered***[1,2,3].

After extensive clinical experience with des, Karnaky[1], Gitman and Koplowitz[2] and Ross[3] as well as countless other clinicians wholeheartedly endorse the sound therapeutic necessity for the use of des in threatened abortion, habitual abortion and premature labor.

In a most recent publication, Karnaky has demonstrated that des, in massive doses (275 milligrams daily) provides optimum therapeutic results with maximum safety.

des—25 milligram tablets—highly micronized, triple crystallized (Grant Process) Stilbestrol (U.S.P.)—dissolve within a few seconds and are uniformly absorbed into the blood stream. Available in containers of 30 and 100 tablets.

new desPLEX—vitaminized, micronized Stilbestrol (U.S.P.). Border-line deficiency of B complex, especially Folic Acid, may sometimes prevent maximum utilization of estrogens. Histories of such cases indicate that the woman had difficulty in metabolizing endogenous or ingested estrogens. Not unusually, mild to severe nausea and vomiting is symptomatic. For additional support, when indicated, prescribe desPLEX, micronized Stilbestrol (U.S.P.), fortified with vitamin C plus B complex, including Folic Acid and B_{12}

Karnaky[4] and Javert[5] agree that C and B complex vitamins and Folic Acid are necessary for the normal physiological metabolism of estrogens. Jailer[6] further substantiates that a border-line deficiency of Folic Acid may result in premature separation of the placenta. *That is why desPLEX is the product of choice.*

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Medical Director

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References:

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Medical TIMES

THE JOURNAL OF GENERAL PRACTICE

Incorporating the Long Island Medical Journal and Western Medical Times

CONTRIBUTIONS Exclusive Publication: Articles are accepted for publication with the understanding that they are contributed solely to this publication, are of practical value to the general practitioner and do not contain references to drugs, synthetic or otherwise, except under the following conditions: 1. The chemical and not the trade name must be used, provided that no obscurity results and scientific purpose is not badly served. 2. The substance must not stand disapproved in the American Medical Association's annual publication, New and Nonofficial Remedies. When possible, two copies of manuscript should be submitted. Drawings or photographs are especially desired and the publishers will have half tones or line cuts made without expense to the authors. Reprints will be supplied authors below cost.

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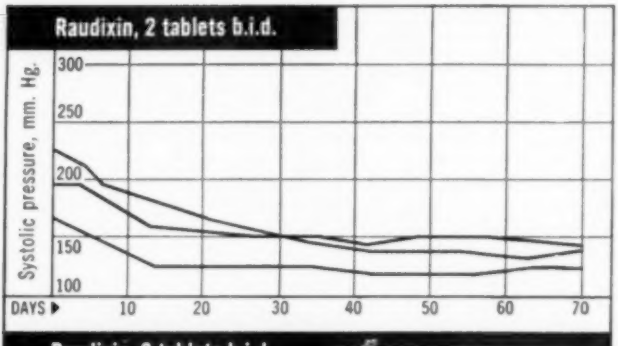
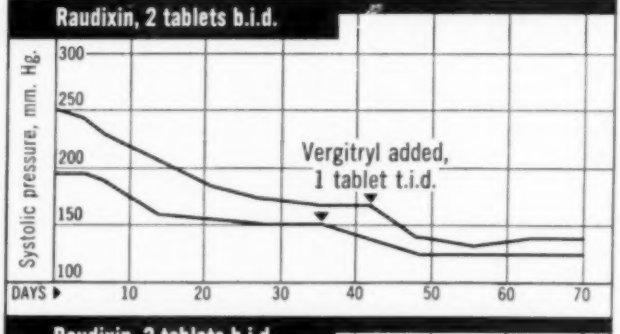
step 1

Raudixin controls most cases of mild to moderate hypertension, and some severe cases.



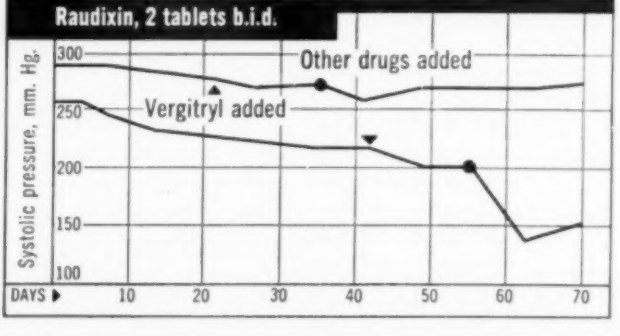
step 2

If blood pressure is not adequately controlled in four to eight weeks, Vergitryl (veratrum) may be added to Raudixin. This brings many of the remaining patients under control. Raudixin tends to delay tolerance to Veratrum, and makes smaller dosage possible.



step 3

For the few patients resistant to this combined regimen, a more potent drug may be added, for example, Bistrium (hexamethonium). The most potent drugs, which are potentially dangerous, are thus used only as a last resort in the most refractory cases.



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And Pet Milk, the original evaporated milk, providing this additional protection, costs less than any other form of whole milk—far less than special infant feeding preparations.

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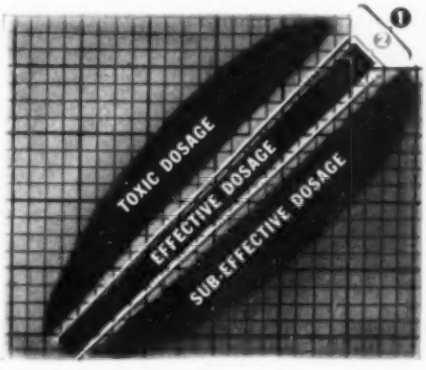
Recent clinical investigations show that protoveratrine produces a significant decrease in systolic and diastolic blood pressures. With adequate dosage, this well-tolerated veratrum derivative can often maintain blood pressure near normal levels indefinitely, and alleviate such symptoms as headache, insomnia, delirium, dizziness, and blurred vision.

Effective dosage for the individual patient can usually be readily established with Veralba, which is available in both 0.2 mg. and 0.5 mg. grooved tablets.

Write for literature and
"dose-establishment" package



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FOR OPTIMAL CONTROL OF
DOSAGE

1 The therapeutic range of protoveratrine is narrow. Hence, continued response to established dosage requires an accurately-standardized dosage form.

2 Veralba is the only protoveratrine preparation standardized by *chemical assay*. The potency of Veralba Tablets is not permitted to vary from lot to lot by more than 3%, plus or minus.

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new dosage form

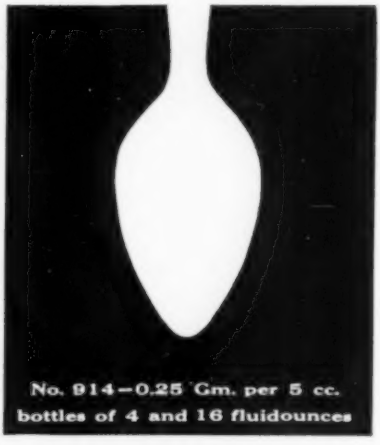
"THIOSULFIL"®

brand of sulfamethylthiadiazole

the outstandingly effective sulfonamide

in urinary tract infections

now available in **SUSPENSION**



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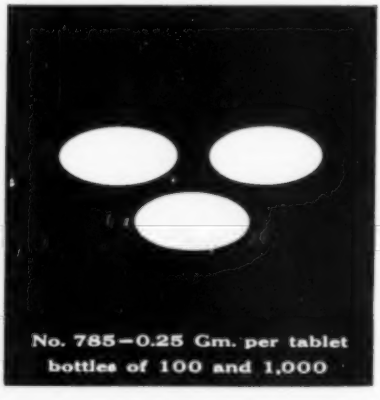
bottles of 4 and 16 fluidounces

- greater solubility
- lower acetylation
- rapid transport to site of infection
- effective bacteriostatic action
- minimum toxicity
- low dosage levels
- no need for alkalinization
- no forcing of fluids

also **TABLETS**



No. 785—0.25 Gm. per tablet
bottles of 100 and 1,000

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533

Detailed literature giving complete dosage regimens is available to physicians.

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Off the Record . . .

True Stories From Our Readers

Each incident described has been contributed by one of our readers. Contributions describing actual and unusual happenings in your practice are welcome. For obvious reasons only your initials will be published. An imported German apothecary jar will be sent in appreciation for each accepted contribution.

Size, Please

One of my patients, a husky six-footer, had a recent operation for a pilonidal cyst. He found sanitary napkins the most useful dressing while going around, and when the supply, which his mother had furnished ran out, he went to a drugstore and asked for a box of Kotex. The clerk asked him what size, small, regular, or large. He was dumbfounded and said, "I don't know." The clerk: "Then you better ask your 'Mrs.' first." "Heck no!" was his answer, "I use them myself."

I don't know who was more embarrassed the clerk or the boy.

B. E., M.D.
Elmhurst, New York

Handwriting Woes

My new secretary could not take dictation so I wrote out, in my usual scrawl, a rough report to the V.A. of my examination. "There is a skin rash on the scrotum and the thigh adjacent to the scrotum."

When the typed report came out it read, "There is a skin rash on the scrotum and *that thing* adjacent to the scrotum."

R.S., M.D.
El Derado, Ark.

Sentence Suspended

She had just had her first child, and on discharge from the hospital, asked us to inform her hyper-sexed husband of the need for celibacy for six weeks postpartum.

His answer—"Gee, thanks, Doc, I thought it was ninety days!"

R. J., M.D.
Eureka, Calif.

Street Car Delivery

While conducting a gynecology clinic at the Hillman Hospital in Birmingham in 1941, a patient came in with this story. "Doctor, I held my knees together and tried to keep this thing in, but when the street car swung about I lost my footing and this thing fell out." She handed me a vaginal speculum.

K. K., M.D.
Texarkana, Ark.

Wrong Season

I was behind time in making a call to see a pneumonia patient because of a previous labor case. I thought I needed to make an excuse to mother and needed to do it before the children, so I said that I had a hen on the nest that was hatching.

No more was said until after I had gone. Then the little boy told the milk man that I did not need to hatch chickens at this time of year for they would all die of cold weather.

H. T. M., M.D.
Boaz, Ala.

—Concluded on page 21a

in the treatment of sick old people...

. . . to establish a more cooperative attitude in the "difficult" patient . . . to relieve anxiety and irritability . . . to overcome "confusion" and depression . . . to revive interest in life and living . . . to encourage activity and a sense of usefulness, prescribe . . .

DEXAMYL* **tablets and elixir**

Each 'Dexamyl' tablet (or one teaspoonful of elixir) contains Dexedrine® Sulfate (dextro-amphetamine sulfate, S.K.F.), 5 mg., and amobarbital (Lilly), ½ gr.

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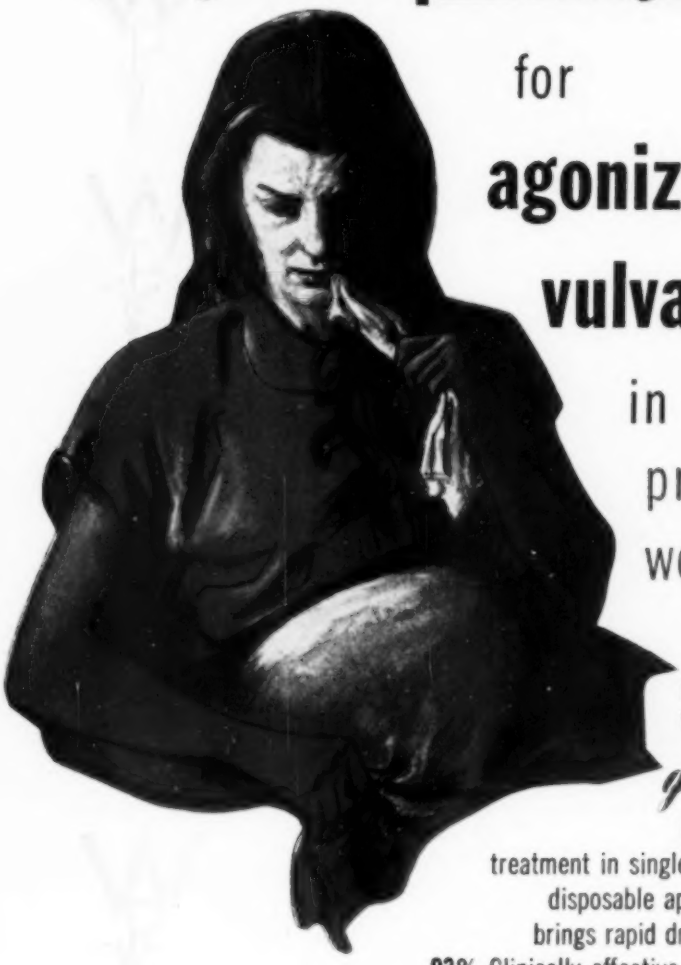

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agonizing vulvar itch

in pregnant women,

in the diabetic and every other woman tortured by Vaginal Thrush.

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Only gentian violet treatment in single-dose disposable applicators brings rapid dramatic relief

93% Clinically effective

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Uniformly *Safe!* FOR INFANTS • CHILDREN ADULTS AND AGED

DOES **NOT** CONTAIN ANY ANTIBIOTIC

Does not affect

BLOODPRESSURE
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CENTRAL NERVOUS SYSTEM

ENTIRELY Safe! in

CARDIAC—DIABETIC
PREGNANCY—THYROID
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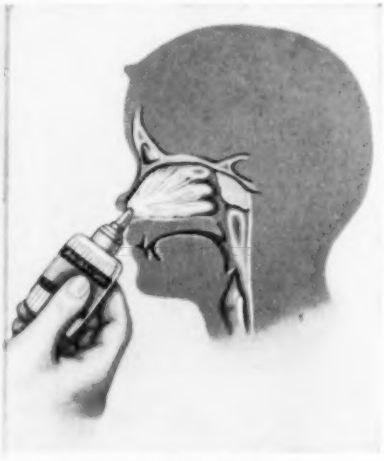
COMPLETELY FREE OF SIDE-EFFECTS... no cumulative action... no overdosage problem... non-toxic.



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NOW Modified Formula assures *PLEASANT, PALATABLE TASTE!*

FORMULA: Desoxyephedrine Saccharinate 0.50% w/v in an isotonic aqueous solution with 0.02% Laurylammonium saccharin. Flavored. pH 6.4.

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Reference to RHINALGAN:

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—Concluded from page 17a

An "Eerie" Experience

A coal miner's wife brought her husband in with a bug in his ear. On examination I found severe hemorrhage in the external canal which I could not explain. I asked the wife what she had done for the husband and she replied that after putting castor oil in the ear the bug didn't run out the other side so she had taken a wire and tried to push it through. All ignorance is not confined to distant shores!

J.H.B., M.D.
Bessemer, Ala.

Worms

This is a copy of a letter received by me.

"Just a few lines asking for advice. Doctor I've tried everything I know what to try to get shed of worms. I've taken 4 treatments of 5 pills of Crystoids Anthelmintic—first treatment I passed 5 of these long worms, one was two foot long. Then I taken one more treatment but none passed from me. Then I taken two treatments at one time, they didn't do any good so I've taken after that two doses of Colomal three one grain tablets at one time following with oil and Black drought and they haven't done any good, so since I taken all these medicine the worms have nearly run me crazy eating and torturing me more than ever. When they bite me sometimes I jump and they choke me nearly all the time so Doctor I want your advice for what next to take for I trust you more than any other doctor in the whole United States even if you did say I had histories when I used to come to you for treatment.

"Say Doctor we worked at four different places since you said that and come to find out that it was only those filthy worms that was wrong. So I am writing you for what next I can do. I am desperate Doctor. No I don't have the histories I don't mean that and you needent say I have them histories for I haven't. I think you owe me at least some advice on what to do for saying I had the histories and it was only worms that was why I had those epileptic fits when I was in my teens or what I think it was. So I'll close, hoping and praying you will answer right back in haste and let me know."

F. G. A., M.D.
Guntersville, Ala.

Levy Malone

Twelve years ago while doing obstetrical service during internship, I delivered a male infant for a woman whose last name was Malone.

The patient insisted that I name the child and when I suggested the name "Levy" she was very happy since she had an aunt whose last name was "Levy." This happiness continued until she saw the full name on the chart "Levy Malone" (Leave Him Alone).

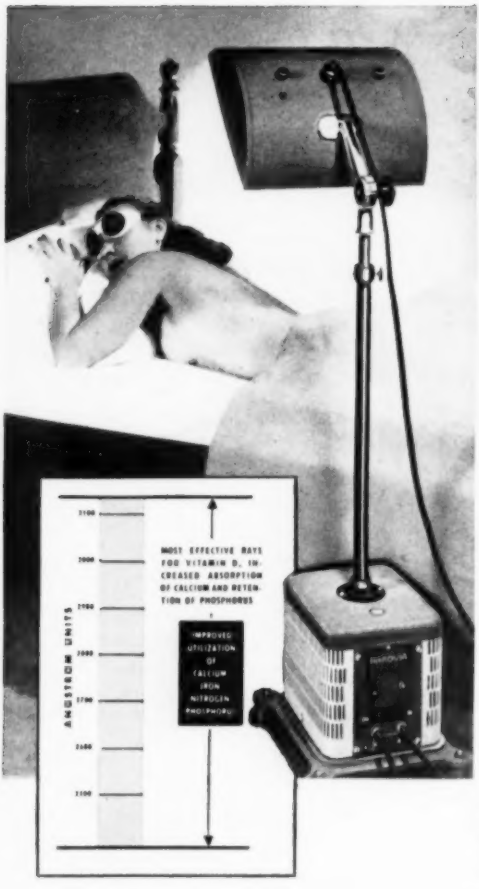
B. R. J., M.D.
Arkadelphia, Ark.

Please, Lady!

Several years ago a patient of mine with uremia was in a dying condition and we thought unconscious. The only light in the room was in the ceiling directly over his head. The bulb burned out and a very attractive and shapely student nurse climbed on to the bed to screw in a new bulb.

The patient opened his eyes and looked up directly at the nurse and said, "Please lady I ain't dead yet." She retired the color of raw meat.

J. H. B., M.D.
Bessemer, Ala.



home ultraviolet treatments ease therapy problems

When patients are confined to their homes or where repeated office treatments are impractical or undesirable, they can still benefit from ultraviolet therapeutic treatment under the physician's control. The Hanovia Prescription Model Ultraviolet Quartz Lamp is designed specifically to facilitate supplemental ultraviolet therapy in the patient's home under supervision of the physician.

Ultraviolet treatment is generally recognized as effective in physical rehabilitation. Proper exposure of the patient to ultraviolet is of value in assisting utilization in dietary deficiencies, increasing blood hemoglobin levels, improving the absorption of calcium, iron, nitrogen, and phosphorus, and for many other bactericidal or therapeutic uses. The Hanovia Prescription Model Lamp delivers the most effective wavelengths in the stimulating portion of the ultraviolet spectrum.

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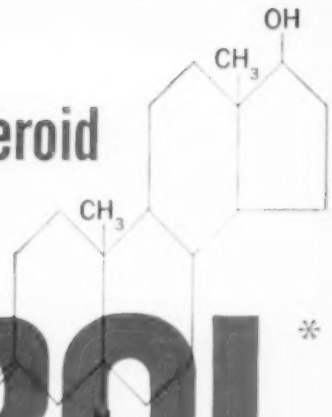

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A PFIZER SYNTEX PRODUCT

... which matches the anabolic and anti-tumor benefits but minimizes the clinical disadvantages of testosterone.

Neodrol possesses a potent, positive, protein anabolic action—like testosterone

Increased muscle mass, improved strength, nonedematous weight gain, erythropoiesis, and positive nitrogen balance—*all* may result from increased protein anabolism stimulated by Neodrol.

Neodrol possesses a tumor-suppressing action—like testosterone

In female patients with advanced, inoperable carcinoma of the breast, Neodrol is as effective as testosterone—and may be somewhat better—in arresting progression, causing regression and preventing development of new lesions. Neodrol appears to offer some advantage over testosterone in alleviating symptoms.

Neodrol exhibits a relatively low incidence of virilizing side effects—unlike testosterone

The most distressing side effects of androgen therapy—hirsutism, acne, clitoral hypertrophy and increased libido—are less frequently encountered with Neodrol therapy and when present are usually slight in degree.

SUPPLIED: In multiple-dose (10 cc.), rubber-capped vials: 50 mg. per cc.

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Leeming brand of triethanolamine trinitrate biphosphate

more effective in angina prevention

than other coronary dilators. When taken routinely, METAMINE prevents anginal attacks or greatly diminishes their number and severity. In addition, METAMINE is apparently nontoxic, even in prolonged or excessive dosage.

there is a reason

METAMINE is chemically distinct from all other organic nitrates in that it has a nitrogen, rather than a carbon linkage. This perhaps explains its greater effectiveness and freedom from side effects.

Dosage: METAMINE is effective in a dosage of **only 2 mg.** To prevent anginal attacks, swallow 1 METAMINE tablet after each meal, and 1 or 2 tablets at bedtime. Full preventive effect is usually attained after third day of treatment.

Supplied: METAMINE tablets, **2 mg.**, vials of 50.

Thos. Leeming & Co. Inc. 155 EAST 44TH STREET, NEW YORK 17, N.Y.

when nutritional well-being is in the balance

tip the scale
in your patient's favor

ABDEC®

KAPSEALS®

comprehensive multivitamin therapy

dosage: For the average patient, 1 ABDEC Kapseal daily. During pregnancy and lactation, 2 Kapseals daily. Three Kapseals daily are suggested for patients in febrile illness, for preoperative and postoperative patients, and for patients in other situations in which vitamin deficiencies are likely to occur.

each ABDEC Kapseal contains:

Vitamin A	10,000 units	Vitamin B_6 (pyridoxine hydrochloride)	1.5 mg.
Vitamin D	1,000 units	Vitamin B_{12}	2 mcg.
Mixed Tocopherols (vitamin E factors)	5 mg.	Pantothenic Acid (as the sodium salt)	5 mg.
Vitamin B_1 (thiamine hydrochloride)	5 mg.	Nicotinamide	25 mg.
Vitamin B_2 (riboflavin)	3 mg.	Vitamin C (ascorbic acid)	75 mg.

ABDEC Kapseals are supplied in bottles of 50, 100, 250, and 1000.

Parke, Davis & Company

Upjohn

oral
estrogen-progesterone
effective in
menstrual disturbances:

Cyclogesterin
TRADEMARK, REG. U. S. PAT. OFF.
tablets

Each scored tablet contains:

Estrogenic Substances* ... 1 mg.
(10,000 I.U.)

Progesterone ..... 30 mg.

**Naturally-occurring equine estrogens (consisting primarily of estrone, with small amounts of equilin and equilenin, and possible traces of estradiol) physiologically equivalent to 1 mg. of estrone.*

Available in bottles of 15 tablets.

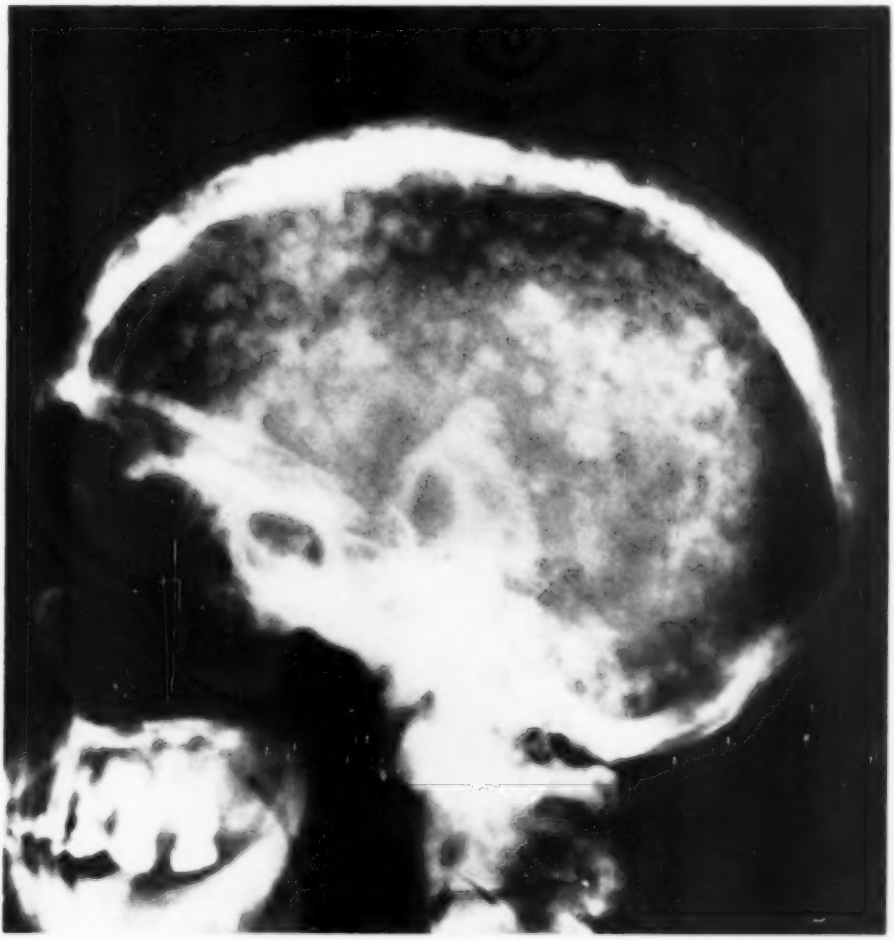
The Upjohn Company, Kalamazoo, Michigan

Diagnosis, Please!

WHICH IS *YOUR* DIAGNOSIS?

1. Fibrous dysplasia?
2. Chronic osteomyelitis?
3. Luetic osteitis?
4. Paget's disease?
5. Hyperparathyroidism?
6. Metastatic malignancy from prostate?

(ANSWER ON PAGE 84A)



Rauwiloid

a selective alkaloidal extract (the alseroxylon fraction) of Rauwolfia serpentina, freed from the inert dross of the whole root

Brings New Efficacy...

Greater Safety...

Lessened Side Actions...

A New Sense of Well-Being...

to the treatment of Hypertension

NOTE THESE ADVANTAGES

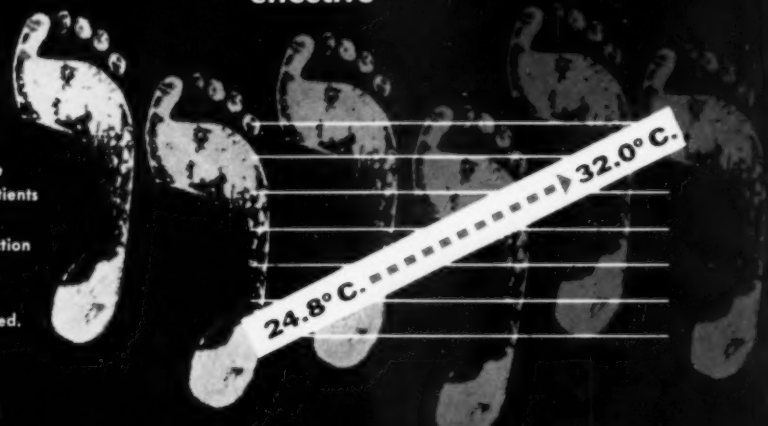
- Moderate, gradual lowering of blood pressure—a slow, smooth hypotensive effect...
- Rapid relief of associated symptoms usually before objective changes are noted...
- Gentle sedation (without somnolence)...
- Mild bradycardia, appreciated especially where tachycardia has led to anxiety...
- Virtually no side effects...
- Dosage not critical—increased dosage (beyond usual effective) produces neither excessive drop in tension nor severe side actions...
- No known contraindications...

in peripheral vascular disorders

for more blood flow . . . Priscoline®

hydrochloride
(tolazoline hydrochloride Ciba)

orally and parenterally effective



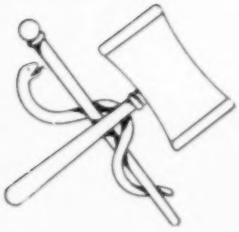
Average rise in skin temperature of toes in 15 patients after a single intravenous injection of Priscoline. (Reedy, W. J.: J. Lab. & Clin. Med. 37:365, 1951.)

Of the peripheral vasodilating agents available "Priscoline, given orally in doses of 0.025 to 0.050 Gm. every three or four hours, appears to be the most practicable for prolonged clinical trial." (Cecil and Loeb: Textbook of Medicine, ed. 8, 1951, p. 1189.)

Ciba Pharmaceutical Products, Inc., Summit, N. J.

Ciba

2-19179M



What's Your Verdict?

Edited by Ann Picinich, Member of the Bar of New Jersey

A girl about four years of age, was having a tonsillectomy performed by a surgeon, assisted by an anesthetist. During the operation, in which a Crow-Davis mouth gag was being used to hold open her mouth, four of the upper front teeth were loosened and were dangling from the gum. So that they might not be inhaled into the lungs, the surgeon, removed the precious "baby" teeth from their owner's possession.

A complaint was subsequently entered that the loss of her front teeth resulted in a permanent facial disfigurement and caused past, present and future bodily and mental pain. There was evidence of a change in the child's behavior and personality.

The physicians, on the other hand, defended that there was no negligence, but that the teeth were frequently lost in such operations without any apparent cause or reason. Often a very light rub or pressure on "baby" teeth will loosen them because "baby" teeth have no roots. Further, that there was no injury to the child, but that the child had a badly constricted arch.

The trial court awarded a judgment of $5,000 against the anesthetist, based on the finding of the jury. As negligence was imputed to the anesthetist alone, the surgeon got off "scot free."

The case was appealed to the Supreme Court. What would your verdict have been?

On appeal, the Supreme Court held that neither negligence nor injury had been established, and reversed the judgment of the trial court stating: "Before liability would attach, if the injury could have been due to several causes, any one of which might have been the sole proximate cause, it must be shown as between these causes that it was the physician's negligence that caused the injury. It appears that the child's condition was due to a natural cause of a restricted mouth. This condition prevents the incoming of the permanent teeth in a natural manner, in other words, the construction of the mouth does not leave room for the teeth to come in properly and they are sometimes rotated or turned from their proper position."

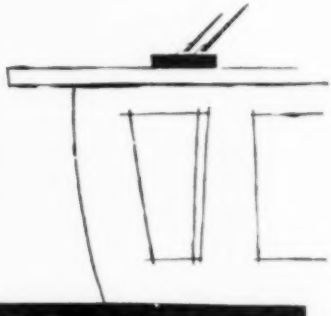
Based on decision of Supreme Court of Colorado

"But Doctor,

IT MUST BE MY GLANDS"

insists the obese patient whose dietary habits have forced her to seek assistance in reducing.

AMPLUS helps to keep her appetite under control with dextro-Amphetamine Sulfate and her diet nutritionally balanced with Vitamins, Minerals and Trace Elements.



AM PLUS

EACH CAPSULE CONTAINS

Dextro-Amphetamine Sulfate	5 mg.	Potassium	1.7 mg.
Calcium	242 mg.	Zinc	0.4 mg.
Cobalt	0.1 mg.	Vitamin A	5000 U.S.P. Units
Copper	1 mg.	Vitamin D	400 U.S.P. Units
Iodine	0.15 mg.	Thiamine Hydrochloride	2 mg.
Iron	3.33 mg.	Riboflavin	2 mg.
Manganese	0.33 mg.	Pyridoxine Hydrochloride	0.5 mg.
Molybdenum	0.2 mg.	Niacinamide	20 mg.
Magnesium	2 mg.	Ascorbic Acid	37.5 mg.
Phosphorus	187 mg.	Calcium Pantothenate	3 mg.

J. B. ROERIG AND COMPANY • CHICAGO 11, ILLINOIS

LETTERS TO THE EDITOR

This department is offered as an Open Forum for the discussion of topical medical issues. All letters must be signed. However, to protect the identity of writers, who are invited to comment on controversial subjects, names will be omitted when requested.

Ocular Trauma

Your article on "Initial Treatment of Ocular Trauma" contained so much misinformation I could not help pointing it out to you.

1. The best place to stand is the only place not mentioned—in front of the patient.

2. You never use a blunt spud to remove a foreign body from the cornea but a sharp one.

3. You will never see a fine abrasion of the cornea unless you wash out thoroughly the 2% Fluorescein.

4. Only in chemical or lime burns would you advise that a patient plunge his head into a pail of water.

5. In a perforating injury to the globe you don't first suture a flap over it and then send the patient to the ophthalmologist, but you instill an antiseptic ointment and cover—and send to the ophthalmologist immediately.

6. If a lid is sutured according to instructions given you would have: a. notching of the lid margin, and b. a buried layer of silk sutures, in the tarsal plate, which you could not later remove.

William Acampora, M.D.
New York, N. Y.

Thank you for your comments on the article about ocular trauma. You are cor-

—Concluded on page 41a

When LIFE HUNG BY A HAIR

IT IS strange that more research has not been done on the causal relationship of asthma and cosmetics. Here is a large and fertile field for investigation. The number of substances used in cosmetics is almost endless, and their use is almost universal. That cosmetics can precipitate near fatal attacks of asthma is well illustrated by the case of the cyanotic infant.

It was late at night, and for the third time, a Brooklyn physician was roused from his sleep by a desperate emergency call. A six months old baby was writhing, gasping and cyanotic from an acute asthmatic seizure.

The baby was rushed to the hospital, placed in an oxygen tent, adrenalin administered, and after a difficult night in which life actually hung in the balance, was finally relieved of its symptoms.

This was the third time that such an emergency had occurred in this infant. In the intervening time, a long series of fruitless tests had been made to isolate the allergen or allergens which precipitated the seizures. Since the infant remained symptom-free while in the hospital, it became quite evident that the causative allergen was something in the child's home environment.

Finally, the mother's dander was tested on the infant with dramatic results. It was found that the substance responsible for the attacks was the Karaya Gum contained in the wave set used by the mother. Shortly after a hair set, this gum flaked off from the hair, and precipitated the severe asthmatic attack in the infant.

Sensitivity to Karaya Gum is by no means rare. It has been described by a number of investigators as precipitating asthmatic attacks, both as an ingestant (ingredient of gum drops, ice creams, salad dressings, laxatives), as well as an inhalant from hair-setting solutions and hand and skin lotions.

Since women with Karaya Gum sensitivity still find it necessary to set their hair for more attractive appearance, your Medical Detective has had frequent occasion to prescribe AR-EX Wave Set for these patients. AR-EX Wave Set is an excellent preparation for this purpose, since quince seed is used as the mucilaginous agent, and quince seed does not dry powder or flake—a cosmetic as well as hygienic advantage. It is available either Scented or Unscented—the latter being especially useful for women who are allergic to prefumes.

THE MEDICAL DETECTIVE

Gantrisin 'Roche' — a single, soluble, wide-spectrum sulfonamide —

Gantrisin 'Roche' is especially soluble at the pH of the kidneys. That's why it is so well tolerated... does not cause renal blocking... does not require alkalies. Produces high plasma as well as high urine levels. Over 150 references to Gantrisin® in recent literature.

A new, potent antibacterial—

Gantricillin-300 'Roche'

... for wide-spectrum antibacterial therapy. Each Gantricillin®-300 tablet provides 300,000 units of penicillin PLUS 0.5 Gm of Gantrisin®-- the single, soluble sulfonamide.

he's heard the call for

VI-DAYLIN®

(Homogenized Mixture of Vitamins A, B_1, B_2, B_{12}, C, D and Nicotinamide, Abbott)

You can score it as a gulp-down . . . just as soon as he sniffs that lemon-candy spoonful.

But along with its lip-smacking flavor, every spoonful of VI-DAYLIN carries a full day's serving of *seven* important vitamins—including 3 mcg. of body-building B_{12}. There's no face-making fishy tastes, either.

An extra point for Mom: VI-DAYLIN needs no pre-mixing, no droppers, no refrigeration. She can pour it as is—serve it with milk, juices or cereal, store it where she wishes.

Won't you compare the taste? Before you prescribe VI-DAYLIN—or any multivitamin mixture—make your own taste test. You'll see why VI-DAYLIN lures the little patients (and their Mommas) at one sight of the spoon.

In 90-cc., 8-fluidounce and one-pint bottles.

Abbott

Each 5-cc. teaspoonful of VI-DAYLIN contains:

Vitamin A	3000 U.S.P. units
Vitamin D	800 U.S.P. units
Thiamine Hydrochloride	1.5 mg.
Riboflavin	1.2 mg.
Ascorbic Acid	40 mg.
Vitamin B_{12} Activity (by microbiological assay)	3 mcg
Nicotinamide	10 mg.

IMPROVED FORMULA

I-237

Aminodrox

Aminodrox

Aminodrox

Aminodrox

Aminodrox

Heard at the staff meeting . . .

Aminodrox increases the usefulness of oral aminophylline

send for detailed literature and sample

THE S. E. MASSENGILL CO.

BRISTOL, TENNESSEE

In the form of AMINODROX, three out of four patients can be given therapeutically effective *oral* doses of aminophylline.

This is possible with AMINODROX because gastric disturbance is avoided.

Now congestive heart failure, bronchial and cardiac asthma, status asthmaticus and paroxysmal dyspnea can be treated successfully with *oral* aminophylline in the form of AMINODROX.

Aminodrox Tablets contain 1 1/2 gr. aminophylline with 2 gr. activated aluminum hydroxide.

Aminodrox-Forte Tablets contain 3 gr. aminophylline with 4 gr. activated aluminum hydroxide.

Also available with 1/4 gr. phenobarbital.

for complete protection

you need a WHOLE UMBRELLA

for complete B complex protection

Mejalin—and only Mejalin—supplies all eleven of the identified B vitamins plus liver and iron

Many of your patients need the complete protection of Mejalin: the very young with capricious appetites; the old who don't eat properly; the adolescent and the convalescent; the prenatal and the postpartum; persons "too busy to eat"; those on restricted diets, and others whose dietary intake may be inadequate or irregular.

And B vitamin protection is of course essential for persons with impaired utilization or synthesis of B vitamins, as in certain gastrointestinal disturbances and in oral antibiotic therapy.

MEJALIN LIQUID: bottles of 12 ounces.
MEJALIN CAPSULES: bottles of 100 and 500.

Two exceptionally pleasant dosage forms assure acceptance by patients

Each teaspoon of Mejalin Liquid and each Mejalin Capsule supplies:

Thiamine	1 mg.
Riboflavin	1 mg.
Niacinamide	10 mg.
Pyridoxine hydrochloride	0.2 mg.
Pantothenic acid	1 mg.
Choline	50 mg.
Inositol	20 mg.
Vitamin B_{12} (crystalline)	0.30 mcg.
Folic acid	0.2 mg.
Biotin	0.02 mg.
Para-aminobenzoic acid	0.5 mg.
Liver fraction	300 mg.
Iron (from ferrous sulfate)	7.5 mg.

Mejalin Liquid contains panthenol and soluble liver fraction N. F. Mejalin Capsules contain calcium pantothenate and desiccated liver N. F.

Mejalin

the broad spectrum vitamin B complex supplement

MEAD JOHNSON & COMPANY
Evansville 21, Indiana, U.S.A.

MEAD

LETTERS TO THE EDITOR

—Concluded from page 33a

rect in that some of the points in the article could have been more specific.

1. With the patient in a straight chair, the examiner can often find a foreign body best while standing in front of the patient. Standing behind or beside the patient is most useful when the patient is in a chair with a head rest that can be tipped back.

2. A blunt spud may be used to remove a foreign body that is superficially embedded in the cornea. The implication in the article is that if the foreign body is embedded deeply enough to require removal with a sharp spud, it should be removed by an ophthalmologist.

3. Fluorescein will often be washed out by tears, but if not, it should be washed out with water or saline, as you advise. Only then can a small abrasion be seen.

4. The statement in the article concerning plunging the patient's head into a bucket of water was meant to apply to chemical and lime burns only, where it is necessary to wash out the offending agent promptly.

5. The technic of emergency closure of a perforation of the globe by means of a conjunctival flap was included in the article for the benefit of practitioners in rural areas where there might be considerable delay in getting the patient to an ophthalmologist, and the necessity exists of preventing leakage of ocular contents in the interim. Unquestionably, in a city where an ophthalmologist can be reached easily, the patient should be taken to him immediately.

6. The technic of lid suture illustrated in the small schematic drawings below admittedly might result in notching of the lid in some instances. This possibility can be prevented by producing a lap-joint, as illustrated in the accompanying drawings. A layer of fine silk sutures in the tarsal plate, however, is not objectionable.

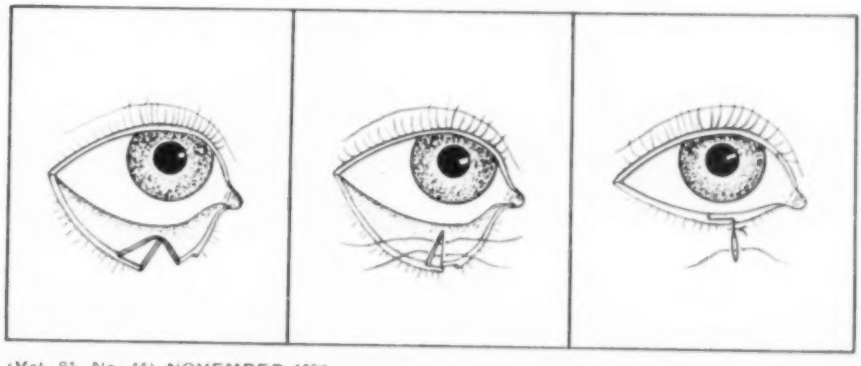
B. H. Griffith, M.D.
Associate Editor, MEDICAL TIMES

Excellent Journal

My associate and I find your journal very valuable in our practice. As general practitioners we have very little time to go through all of the journals, selecting the material which is of most value to us. Your staff does the job by separating the wheat from the chaff.

We hope that you will keep up your program of refresher articles and look forward to receiving your journal each month.

S.B., M.D.
Los Angeles, Calif.



Tasty, Stable, Ready-to-use

Pediatric **Erythrocin** Stearate

(Erythromycin Stearate, Abbott)

ORAL SUSPENSION

A SWEET, cinnamon-flavored suspension with the cocci-killing effectiveness of ERYTHROCIN. That's *Pediatric* ERYTHROCIN Suspension. Little patients like it.

Pediatric ERYTHROCIN Suspension is ready for instant use. No mixing required. This new form of an effective antibiotic maintains stability for at least 18 months—whether or not the bottle has been opened. Prescribe odd or even ounces, as indicated.

ESPECIALLY INDICATED in otitis media, bronchitis, sinusitis, pharyngitis, tonsillitis, scarlet fever, pneumonia, erysipelas, pyoderma . . . when children are sensitive to other antibiotics or when the organism is resistant . . . when the organism is staphylococcus, because of the high incidence of staphylococci resistant to broad-spectrum antibiotics.

Like ERYTHROCIN Tablets, *Pediatric* ERYTHROCIN Suspension is specific in action—*less likely to alter the normal intestinal flora than the three broad-spectrum antibiotics.* Can be administered before, after or with meals. All pharmacies have *Pediatric* ERYTHROCIN Suspension in 2-fluidounce, pour-lip bottles. Try it. Abbott


...“sense of well-being”...
Relief of menopausal symptoms was complete
in practically 96 per cent of patients
receiving “Premarin” and
“General tonic effects were noteworthy . . .”*
“PREMARIN” in the menopause
Estrogenic Substances (water-soluble) also known as
Conjugated Estrogens (equine). Tablets and liquid.
* Perloff, W. H. Am. J. Obst. & Gynec. 38:684 (Oct.) 1940.
Ayerst
5504
AYERST, McKENNA & HARRISON LIMITED New York, N. Y. Montreal, Canada

Major advance in dermatitis control:

The new direct approach to the control of dermatitides is hormonal, enlisting the antiphlogistic and antiallergic potency of compound F—foremost of the corticosteroid hormones.

The new objective is adapting corticoid therapy to simple injunction treatment, and obtaining relief in various forms of dermatitides within days—sometimes within hours.

The new attainment is Cortef Acetate Ointment, which rapidly controls edema and erythema, halts cellular infiltration, arrests pruritus in such harassing skin problems as atopic dermatitis, contact dermatitis, pruritus vulvae and ani, neurodermatitis, and seborrheic dermatitis.

Cortef*

Acetate Ointment

Supplied: *Cortef Acetate Ointment is available in 5 Gm. tubes in two strengths—2.5% concentration (25 mg. per Gm.) for initial therapy in more serious cases of dermatitis, and 1.0% concentration (10 mg. per Gm.) for milder cases and for maintenance therapy.*

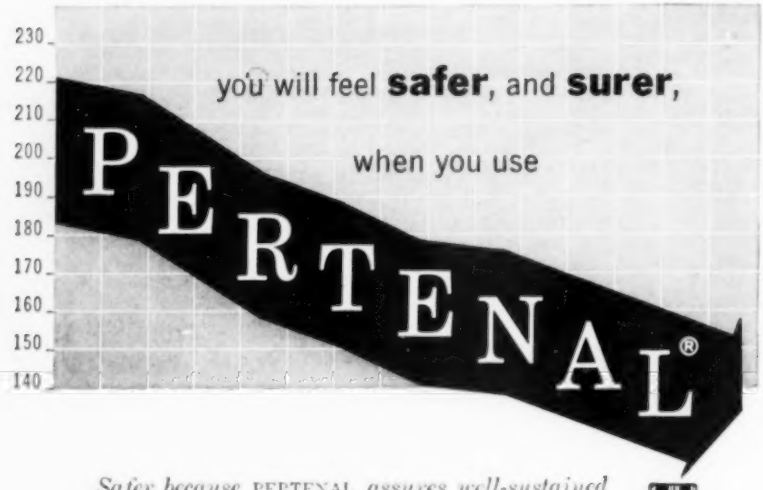
Administered: *A small amount is rubbed gently into the involved area one to three times a day until definite evidence of improvement is observed. The frequency of application may then be reduced to once a day or less, depending upon the results obtained.*

*TRADEMARK FOR UPJOHN'S BRAND OF HYDROCORTISONE.

A product of **Upjohn Research** *for medicine...produced with care...designed for health*

THE UPJOHN COMPANY, KALAMAZOO, MICHIGAN

in **hypertension**



Safer because PERTENAL *assures well-sustained lowering of pressure, and prompt control of distressing symptoms, without fear of serious toxic reaction.*

Surer because PERTENAL *is a comprehensive approach to the problem.*

PERTENAL combines:

1. The DUAL HYPOTENSIVE ACTION of veratrum viride and mannitol hexanitrate. Mannitol hexanitrate reduces pressure promptly, permitting the veratrum to take effect at a lower pressure level and with lower dosage ...thus reducing possibility of toxic reaction.
2. The G.I. ANTISPASMODIC ACTION of homatropine methylbromide to relax g.i. tension and to prevent or decrease any veratrum nausea.
3. The SEDATIVE ACTION of phenobarbital to allay anxiety and decrease mental tension.

For better and safer control of the many symptoms and the many factors which may aggravate or intensify HYPERTENSION *specify* PERTENAL.

detailed information and samples to physicians on request

CROOKES LABORATORIES, INC. *Crookes* MINEOLA, NEW YORK

Therapeutic Preparations for the Medical Profession

Reducing the Obese Diabetic on the Knox Gelatine Plan

85% of diabetic patients over 40 have been found to be overweight to some degree.
60% were 20% or more overweight.
25% more were moderately overweight.[1]

The Knox Unflavored Gelatine Diet attacks the problem of obesity in diabetics on six different fronts:

1. All protein — no sugar, it provides a high protein base and supplement for a low-calorie weight control diet.
2. It's high amino acid content aids in maintaining nitrogen balance of tissues.
3. It helps protect tissues from protein drain possible in low-calorie diet.
4. It can increase metabolism as much as 20% above base levels.[2,3]
5. It offers a wide choice of foods that look good to eat and are good to eat.
6. It does away with that "always hungry" feeling through satisfying bulk.

In a high percentage of diabetics, reducing the weight to normal by adhering to a low fat, high protein diet can hasten the return to normal glucose tolerance,[4] and reduce or even obviate the need for insulin. Diabetics can enjoy a delicious, yet correct diet of appetizing Knox Gelatine foods including:

Soups — *hot or chilled*
Salads — *appetizing aspics*
Salad Dressing — *low calorie*
Main Course Molds — *meat, poultry, fish, vegetables*
Desserts — *sponges, custards, molds*
Knox Gelatine Drink — *concentrated protein of gelatine in water, juices or milk*

Write for Diabetic Diet booklets and Knox's "Eat and Reduce Plan" recipe book. All recipes use non-calorie sweeteners, such as saccharin or cyclamate sodium, NNR Sucaryl. Knox Gelatine Co., Johnstown, N. Y. Dept. MT

1. George F. Baker Clinic and Metropolitan Life Insurance Company: Diabetes in the 1940's, New York, 1949, Metropolitan Life Insurance Company Press, 1949.
2. Abel, M. S., Am. J. Med. Sci. 205:414, 1943.
3. Lewis, T., Vascular Disorders of the Limbs, p. 50, Mecmillan, 1936.
4. Armstrong, D. B., et al., J.A.M.A. 147:1007, 1951.

Knox Gelatine U.S.P.

All Protein No Sugar

To protect your patients, have them ask for KNOX *specifically.*
Available at grocery stores in 4-envelope family size and 32-envelope economy size packages.

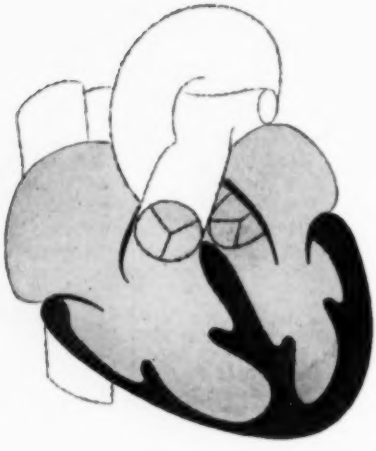
NOW

the first intramuscular digitoxin

DIGITALINE NATIVELLE®

INTRAMUSCULAR

for dependable digitalization and maintenance when the oral route is unavailable



DIGITALINE NATIVELLE INTRAMUSCULAR
is indicated for patients who are comatose, nauseated or uncooperative, or whose condition precludes the use of the oral route.

DIGITALINE NATIVELLE INTRAMUSCULAR
provides all the unexcelled virtues of its parent oral preparation.

Steady, predictable absorption.

Equal effectiveness, dose-for-dose with oral DIGITALINE NATIVELLE.

Easy switch-over to oral medication.

Clinical investigation has shown that DIGITALINE NATIVELLE INTRAMUSCULAR is "effective in initiation and maintenance of digitalization. A satisfactory therapeutic effect was obtained with minimal local and no undesirable systemic effects."*

DIGITALINE NATIVELLE INTRAMUSCULAR – 1-cc. and 2-cc. ampules, boxes of 6 and 50. Each cc. provides 0.2 mg. of the original digitoxin – DIGITALINE NATIVELLE.

*Strauss, V.; Simon, D. L.; Iglauer, A., and McGuire, J.: Clinical Studies of Intramuscular Injection of Digitoxin (Digitaline Nativelle) in a New Solvent. Am. Heart J. 44:787, 1952.

Literature and samples available on request.

VARICK PHARMACAL COMPANY, INC.
(Division of E. Fougera & Co., Inc.)
75 Varick Street, New York 13, N. Y.

They'd fill the floor to overflowing...

all the patients who represent

the 44 uses for short-acting **NEMBUTAL**

As a sedative or hypnotic . . . in obstetrics, surgery, pediatrics . . . *in more than 44 clinical conditions* . . . short-acting NEMBUTAL has established a 23-year record of acceptance and effectiveness.

Here's why:

1. Short-acting NEMBUTAL (Pentobarbital, Abbott) can produce any desired degree of cerebral depression —from mild sedation to deep hypnosis.

2. The dosage required is small—only about one-half that of many other barbiturates.

3. Hence, there's less drug to be inactivated, shorter duration of effect, wide margin of safety and little tendency toward morning-after hangover.

4. In equal oral doses, no other barbiturate combines quicker, briefer, more profound effect.

Any wonder, then, that the use of short-acting NEMBUTAL continues to grow each year? How many of short-acting NEMBUTAL's uses have *you* tried?

Abbott

FOR INSOMNIA OR SEDATIVE EFFECT try the 50-mg. (¾-gr.) NEMBUTAL Sodium capsule.

FOR BRIEF AND PROFOUND HYPNOSIS try the 0.1-Gm. (1½-gr.) NEMBUTAL Sodium capsule.

Pneumonia weather...
the season
for bacterial
respiratory tract
infections

a time
for...

TERRAMYCIN®

BRAND OF OXYTETRACYCLINE

The value of Terramycin in promptly controlling otitis media, severe sinusitis, laryngotracheobronchitis, bacterial pneumonia and virtually all infections of the respiratory tract, due to or complicated by the many organisms sensitive to Terramycin, is now a matter of clinical record.

Because of its excellent toleration and rapid response, Terramycin is a therapy of choice for bacterial respiratory tract infections. Among the convenient dosage forms of Terramycin are Capsules, Tablets (sugar coated), good-tasting Oral Suspension, non-alcoholic Pediatric Drops, Intravenous for hospital use in severe infections and various topical preparations including Troches, Nasal and Aerosol for adjunctive therapy.

Pfizer

PFIZER LABORATORIES
Division, Chas. Pfizer & Co., Inc., Brooklyn 6, N. Y.

MODERN MEDICINALS

These brief resumes of essential information on the newer medicinals, which are not yet listed in the various reference books, can be pasted on file cards and a record kept. This file can be kept by the physician for ready reference.

Cenasert Powder, The Central Pharmacal Co., Seymour, Ind. Contains 9-aminoacridine hydrochloride, 0.10%; phenylmercuric acetate, 0.15%; methylbenzethonium chloride, 0.09%; succinic acid, 0.50%; chloropayllins 90% soluble, 0.20%; lactose, 35.00%; papain, 1.25% and boric acid, 62.71%. New dosage form, for use in the treatment of trichomonas vaginalis vaginitis, monilial infestations, and mixed non-specific infections of the vaginal tract. **Dose:** As determined by physician. **Sup:** Powder in 4 oz. bottles, also in bottles of 100 tablets.

Crysdimycin A. S., E. R. Squibb & Sons, New York, N. Y. Each 3 cc. dose provides 600,000 units of procaine penicillin G suspended in an aqueous solution of 0.5 gm. streptomycin sulfate and 0.5 gm. dihydrostreptomycin sulfate. Effective against many gram-negative and gram-positive organisms. **Dose:** As determined by physician. **Sup:** In 5 dose (15 cc.) vials.

Dextran 6% Solution, Abbott Laboratories, North Chicago, Ill. A pyrogen free sterile solution of specially prepared dextran 6% w/v in isotonic sodium chloride solution. As a plasma volume expander in treatment of burns and shock states. **Dose:** Intravenously at rate of 20 to 40 cc. per minute, usual dose is 500 cc., quantity may be increased as condition requires. **Sup:** Combination packages with one 500 cc. bottle of dextran 6% w/v in saline and one Venoset with needle unit.

Erythrocin, 1% Ointment, Abbott Laboratories, North Chicago, Ill. One per cent erythrocin in a bland, hypoallergenic petrolatum for treatment and prevention of pyogenic lesions of the skin. **Dose:** As determined by physician. **Sup:** In 1 oz. tubes.

Malcotran Tablets, Maltbie Laboratories, Inc., Newark, N. J. Homatropine methylbromide. Anticholinergic and ganglionic blocking agent. **Dose:** Recommended starting dosage is 1 or 2 tablets q.i.d., with adjustments as may be indicated for individuals. **Sup:** In bottles of 100, 500 and 1,000 tablets (10 mg.)

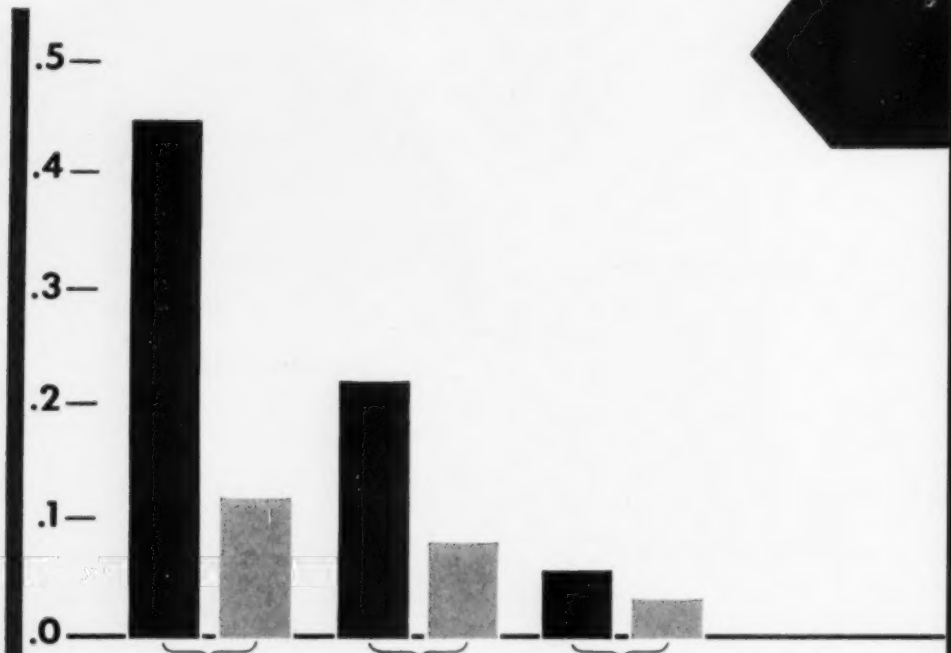
Methium Chloride 500 mg. Tablets, Warner-Chilcott Laboratories, New York 11, N. Y. New tablet size of hexamethonium chloride. In the treatment of high blood pressure. **Dose:** As determined by physician. **Sup:** In bottles of 100 and 500 tablets.

Normacid, Stuart Co., Pasadena 4, Calif. Each tablet contains betaine hydrochloride 440 mg., pepsin, 32.4 mg., methyl cellulose, 110 mg. As replacement therapy in all deficiencies of hydrochloric acid with chronic digestive disturbances as gas and bloating, in pernicious anemia, hypochromic macrocytic anemia, chronic ulcerated colitis. **Dose:** One tablet with each meal, where indicated, a second tablet may be taken shortly after a meal. **Sup:** In bottles of 100 and 1,000 tablets.

Pamine with Phenobarbital, Upjohn Co., Kalamazoo 99, Mich. Each tablet contains pamine bromide, 2.5 mg., phenobarbital, 15 mg. As an adjunct in the manage-

—Concluded on page 59a

Higher Continuous Levels with Potassium Penicillin G—the Ideal Oral Penicillin Salt



AVERAGE BLOOD SERUM LEVELS AT HOURS INDICATED IN 6 PATIENTS
(after Foltz and Schimmel[1])

POTASSIUM PENICILLIN G (300,000 UNITS)

BENZETHACIL (DBED) PENICILLIN (300,000 UNITS)

A comparative study of oral penicillins showed significantly and consistently higher continuous blood levels with potassium penicillin G than with an insoluble penicillin salt.

Not only high initial peaks but continuously effective blood levels are attained with

DRAMCILLIN

—BUFFERED CRYSTALLINE POTASSIUM PENICILLIN G

Potassium penicillin G is also more effective than other oral penicillin salts in attaining the highest peak immediately following the first dosage.[1] Its attack on susceptible organisms thus begins practically at zero hour after administration.

Investigations by Boger and co-workers[2] indicate that *no insoluble salt of the antibiotic is superior to potassium penicillin G.*

Dramcillin is unusually palatable, and is well liked by adults, children, and infants.

Dramcillin, after being constituted by the pharmacist, retains full potency for two weeks under refrigeration.

WHERE THE ORAL ROUTE IS PREFERRED—

DRAMCILLIN 100,000 units* per teaspoonful (5 cc.)

DRAMCILLIN-250 250,000 units* per teaspoonful (5 cc.)

DRAMCILLIN-500 500,000 units* per teaspoonful (5 cc.)

DROPCILLIN 50,000 units* per dropperful (0.75 cc.)

ALSO:

Dramcillin-250 with Triple Sulfonamides
Dramcillin with Triple Sulfonamides
Dramcillin-250 Tablets with Triple Sulfonamides

WHITE LABORATORIES, INC., Kenilworth, N.J.

1. Foltz, E.L., and Schimmel, N.H.: Comparison of Orally Administered Penicillins, Antibiotics & Chemotherapy 3:593 (June) 1953.
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*Buffered crystalline potassium penicillin G

The truly therapeutic B Complex and C with liver and both types of B_{12}. Odorless, capsule-shaped tablets, supplied in bottles of 50 and 100.

allergy

attacks all 3 components of the "common cold"

pain, fever

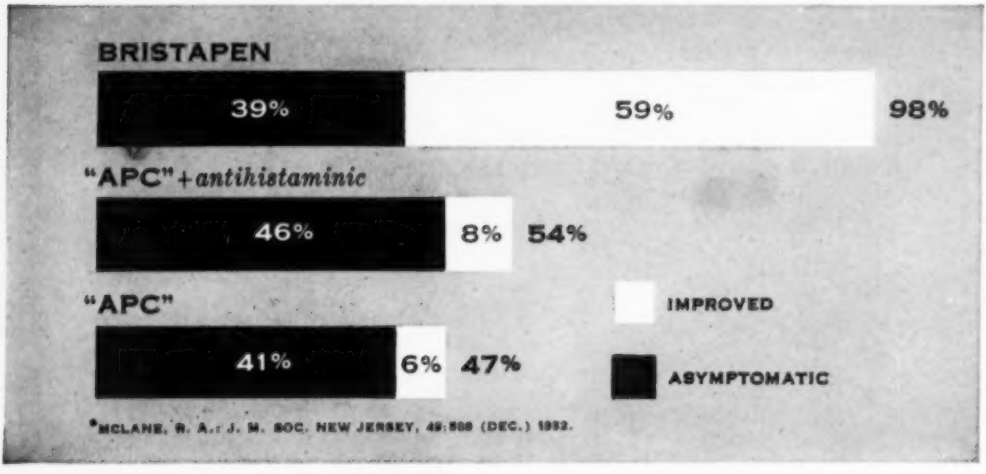
secondary bacterial infections

BRISTAPEN

TRADEMARK

Bristapen combines an antihistaminic, an analgesic-antipyretic, *and* an antibiotic—*penicillin*—for prompt control of rhinorrhea, muscular aches and pains, and prevention of secondary bacterial infection which so often prolongs and aggravates symptoms.

comparative effectiveness of Bristapen in the "common cold"*
Asymptomatic or improved after 72 hour treatment period



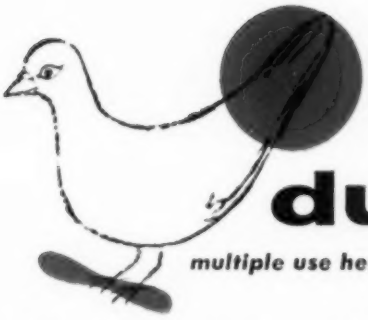
*McLANE, R. A., J. M. SOC. NEW JERSEY, 49:509 (DEC.) 1952.

Each Bristapen tablet contains:

Procaine penicillin G	100,000 units
Bristamin (phenyltoloxamine) dihydrogen citrate	25 mg.
Aspirin	2½ gr.
Phenacetin	2 gr.
Caffeine	½ gr.

Dosage: 2 tablets t.i.d., 1 hour before or 2 hours after meals.
Supplied: Bottles of 24 tablets.

Bristol
LABORATORIES INC.
SYRACUSE NEW YORK



A NEW
NON-CONSTIPATING
HEMATINIC

duotinic®

multiple use hematinic with dove-tailed formula

contains all the known essential building blocks for regeneration of hemoglobin and red blood corpuscles

IRON AND WHOLE LIVER
provide a multiple source of hemopoietic factors, particularly valuable for patients refractory to simple oral iron therapy.

FOLIC ACID + VITAMIN B_{12}
an important metabolic link in the maturation of red blood cells.

VITAMIN C
facilitates conversion of Folic Acid to its physiologically active form, Folinic Acid. Also aids in the utilization of iron.

WHOLE STOMACH SUBSTANCE
for its potentiating factor which promotes the absorption of ingested vitamin B_{12}.

HOG BILE EXTRACT
as a mild laxative without purgative action, and for its catalytic role in the absorption of iron.

FORMULA
Each Duotinic Capsule contains:

Ferrous Sulfate (Exsicc.)	200 mg.
Vitamin B_{12} U.S.P.	10 mcg.
Folic Acid	0.375 mg.
Ascorbic Acid	50 mg.
Extract Hog Bile (Desiccated)	100 mg.
Whole Stomach Substance	100 mg.
Desiccated Liver NF	100 mg.

Supplied: Bottles of 100 capsules

Dosage: 1 capsule t.i.d. in iron deficiency anemias, in other anemias as directed by the physician.

IVES-CAMERON COMPANY, INC., 22 East 40th Street, New York 16, N. Y.

blood pressure reduced

symptoms relieved

A drug of choice for long term oral treatment of hypertension . . . *found effective in 81% of patients*[1]

Lower blood pressure has been obtained in 81% of moderate and severe hypertensives treated with hexamethonium chloride (available as Methium) under general-practice conditions.[1] In 60% of these patients lower pressures continued for 4 to 16 months of the study.

Also, as pressure is reduced, improvement is almost universally seen in eye and heart symptoms, headache, vertigo, dyspnea, etc.[1-6] In some cases even where pressure fails to respond, symptoms may nonetheless abate.[4-7]

Methium, a potent autonomic ganglionic blocking agent, reduces blood pressure by interrupting nerve impulses responsible for vasoconstriction. Because of its potency, careful use is required. Pre-treatment patient-evaluation should be thorough. Special care is needed in impaired renal function, coronary artery disease and existing or threatened cerebral vascular accidents. *A booklet of complete instructions for prescribing is available and should be consulted prior to initiating therapy.*

1. Moyer, J. H., et al.: Am. J. M. Sc. *225*:579 (April) 1953.
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Methium®

CHLORIDE

(BRAND OF HEXAMETHONIUM CHLORIDE)

WARNER-CHILCOTT

Laboratories NEW YORK

—Concluded from page 51a

ment of peptic ulcer and gastric disorders associated with hyperacidity and hypermotility. **Dose:** One tablet ½ hour before meals and 1 or 2 tablets at bedtime. **Sup:** In bottles of 100 tablets.

Peritrate with Phenobarbital Tablets, Warner-Chilcott Laboratories, New York 11, N. Y. Each tablet contains 10 mg. of Peritrate and 15 mg. of phenobarbital. In the prophylactic treatment of angina pectoris. **Dose:** As determined by physician. **Sup:** In bottles of 100 and 500 tablets.

Phenergan Expectorant Troches (Plain), Wyeth, Inc., Philadelphia, Pa. Promethazine and expectorant agents. For coughs. **Dose.** Dissolve troche in mouth every 4 to 6 hours. **Sup:** In jars of 36 troches.

Pomalin, George A. Breon & Co., New York 18, N. Y. Each tablespoonful contains sulfaguanidine U.S.P., 2.0 Gm.; pectin N.F., 1.5%; kaolin, 20%; sodium benzoate U.S.P., 0.118%; benzoic acid U.S.P., 0.1%. Antidiarrheal agent in treatment of early bacillary dysentery, diarrheas of non-specific origin and as an adjunct in ulcerative colitis. **Dose:** Adults, 1 to 2 tablespoonfuls 4 to 6 times daily; children, 0.05 Gm. sulfaguanidine per kg. of body weight. **Sup:** In bottles of 8 fl. oz.

Pronapen Plus, Charles Pfizer & Co., Inc., Brooklyn 6, N. Y. Combination of 200,000 units of crystalline procaine penicillin G, 300,000 units of crystalline dibenzylethylenediamine dipenicillin G and 100,000 units of penicillin G. To provide prompt high blood levels of the antibiotic followed by prolonged therapeutic and prophylactic levels in such diseases as acute gonorrhea, pneumonia, staph infections, syphilis, Vincent's infection, meningitis. **Dose:** By intramuscular injection. **Sup:** As dry powder to which water for injection or other suitable diluent is added, in single dose vials containing .7 cc. by volume or in multiple dose vials of 7 cc., 6,000,000 units.

Roniacol with Aminophylline Tablets, Hoffmann-La Roche, Inc., Nutley 10, N. J. Each tablet contains Roniacol, 50 mg., and aminophylline, 100 mg. in a base containing magnesium trisilicate U.S.P. For conditions requiring a vasodilator such as vascular spasm, Raynaud's disease, peripheral arteriosclerosis, endarteritis, Buerger's disease, varicose ulcers, decubital ulcers, intermittent claudication, chilblains and migraine associated with vascular spasm, as an adjunct in treatment of congestive heart failure, for angina pectoris and to enhance cerebral circulation. **Dose:** As determined by physician. **Sup:** In bottles of 100 and 500 tablets.

Sustagen, Mead Johnson & Co., Evansville 21, Ind. Dietary supplement. In oral surgery, carcinoma of the pharynx or esophagus, swallowing problems, cerebrovascular accidents, brain tumors and in other feeding problems. **Dose:** By nasal tube either in normal dilution of 1 oz. Sustagen to 2 oz. of water, or in concentrated dilution of 3 oz. Sustagen to 5 oz. of water. Orally, 3 oz. of Sustagen in 5 oz. of water. **Sup:** Powder in 2½ lb. and 5 lb. cans.

Theron, Stuart Co., Pasadena 4, Calif. Multivitamin and mineral preparation. In treating a deficiency of essential vitamins. **Dose:** One or 2 tablets daily preferably after eating. **Sup:** In bottles of 100 and 1,000 tablets.

Tussar, The Armour Laboratories, Chicago 11, Ill. Each fl. oz. contains: dihydrocodeinone bitartrate, 1/6 gr.; potassium guaiacol sulfonate, N.F., 8 gr.; sodium citrate, U.S.P., 13.2 gr.; citric acid, U.S.P., 2 gr.; prophenpyridamide maleate, 1 gr.; chloroform, U.S.P., 2 minims; methyl paraben, U.S.P., 0.1% and blond cherry flavor. **Dose:** As determined by physician. **Sup:** In 16 oz. bottles.

Verclysyl, Abbott Laboratories, North Chicago, Ill. Combination of invert sugar and vitamin B complex for use in those patients unable to take nourishment by mouth. **Dose:** Intravenously at rate of 20 to 40 cc. per minute. **Sup:** In Abbo-Liter containers, either 5% Verclysyl in water or Verclysyl 10% in water.

Veribile Tablets, Sharp & Dohme, Inc., West Point, Pa. Each tablet contains dehydrocholic acid, 60 Mgm., extract of ox bile, 60 Mgm., whole desiccated and defatted pancreas, 30 Mgm., choline dihydrogen citrate, 150 Mgm. In bile salt replacement therapy, in gallbladder and liver syndromes to stimulate bile production and aid in fat digestion. **Dose:** One to 2 tablets 3 times daily. **Sup:** In bottles of 100 tablets.

WHEN BALANCE IS IMPORTANT

"One must view the quality of the diet as a whole and avoid the extremes and imbalances that are so often encountered by getting excited about only one or a few vitamins or minerals."*

VITERRA provides an adequate daily supply of all interrelated Vitamins, Minerals and Trace Elements to assure maintenance of nutritional balance.

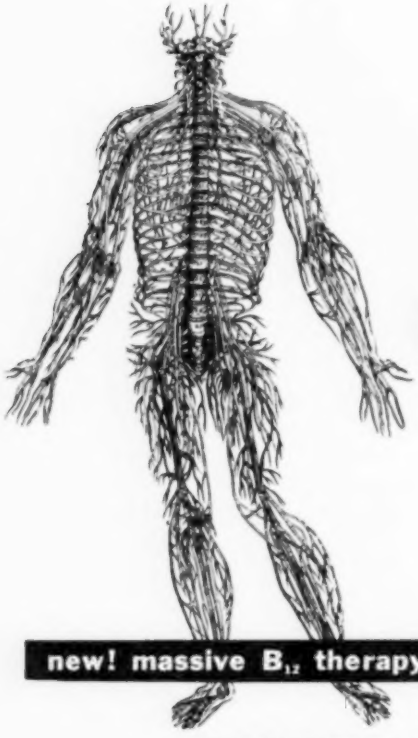
**King, C.G.: Trends in the Science of Food and Its Relation to Life and Health, Nutrition Review, 10:4, (Jan.) 1951*

Specify Viterra whenever balanced supplementation is required

Each capsule contains

Vitamin A	5,000 U.S.P. Units	**Calcium**	213 mg.
Vitamin D	500 U.S.P. Units	**Cobalt**	0.1 mg.
Vitamin B 12	1 mcg.	**Copper**	1 mg.
Thiamine Hydrochloride	3 mg.	**Iodine**	0.15 mg.
Riboflavin	3 mg.	**Iron**	10 mg.
Pyridoxine Hydrochloride	0.5 mg.	**Manganese**	1 mg.
Niacinamide	25 mg.	**Magnesium**	6 mg.
Ascorbic Acid	50 mg.	**Molybdenum**	0.2 mg.
Calcium Pantothenate	5 mg.	**Phosphorus**	165 mg.
Mixed Tocopherols (Type IV)	5 mg.	**Potassium**	5 mg.
		Zinc	1.2 mg.

J. B. ROERIG AND COMPANY • CHICAGO



dramatic,
sustained relief
in
severe

nerve pain

of

- trigeminal neuritis
- diabetic neuritis
- subacute combined sclerosis (of pernicious anemia)
- peripheral neuritis
- herpes zoster
- tabes dorsalis
- acute subdeltoid bursitis

new! massive B_{12} therapy...

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1000 mcg. vitamin B_{12} per cc.

for intramuscular or subcutaneous injection

Complete or long-time remission of pain in a substantial number of patients • often successful where all other therapy has failed • non-toxic • well worth trying in these disabling, agonizing pain conditions which so often leave the physician so helpless and the patient so hopeless.

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IN PREVENTIVE GERIATRICS

A dynamic approach to better health for the aging patient

"Mediatric" Capsules are recommended for the postmenopausal woman and the man over 50. Specially formulated to meet their particular needs, they provide steroids and nutritional factors to effectively counteract waning sex hormone function and dietary inadequacy, as well as to help maintain the integrity of general metabolic processes; also included is a mild antidepressant which will tend to promote a gentle emotional uplift. "Mediatric" Capsules will prove a valuable aid in safeguarding the health of your aging patients.

Each capsule contains:

STEROIDS	
Conjugated estrogens equine ("Premarin"®)	0.25 mg.
Methyltestosterone	2.5 mg.
NUTRITIONAL SUPPLEMENTS	
Vitamin C (ascorbic acid)	50.0 mg.
Thiamine HCl (B_1)	5.0 mg.
Vitamin B_{12} U.S.P. (crystalline)	1.5 mcg.
Folic acid	0.33 mg.
Ferrous sulfate exsic.	60.0 mg.
Brewers' yeast (specially processed)	200.0 mg.
ANTIDEPRESSANT	
d-Desoxyephedrine HCl	1.0 mg.

No. 252 — Supplied in bottles of 30, 100, and 1,000.

SUGGESTED DOSAGE:

Male: One capsule daily, or more as required.

Female: One capsule daily, or more, taken in 21-day courses with a rest period of one week between courses.

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in ARTHRITIS and

Like other potent therapeutic agents, BUTAZOLIDIN may sometimes produce undesirable side actions. To achieve optimal results with minimal risk of toxicity certain simple precautions are recommended:

Careful Selection of Patients excluding the senile and those with a history of peptic ulcer, drug allergy or cardiac disease.

Moderate Dosage individualized for each patient at the lowest level required to produce and maintain therapeutic benefit.

Regular Observation of Patients including careful clinical examination and periodic blood counts.

For detailed information physicians are urged to send for the brochure "Essential Clinical Data on BUTAZOLIDIN."

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(brand of phenylbutazone)

effective and potent therapeutic agent

Experience in several hundred thousand cases has now completely confirmed the therapeutic potency of the new antiarthritic agent, BUTAZOLIDIN. This entirely new synthetic, unrelated to the steroid hormones, affords these distinctive advantages:

- ***Broad Spectrum of Action*** including virtually all forms of arthritis and many other painful musculoskeletal disorders.
- ***Great Therapeutic Effectiveness*** manifested by relief of pain and functional improvement in the majority of cases.
- ***No Development of Tolerance*** leading to escape from control.
- ***Simple Oral Administration.***

Indications include gout, spondylitis, rheumatoid arthritis, osteoarthritis, and psoriatic arthritis as well as fibrositis, bursitis, and other periarticular disorders.

BUTAZOLIDIN® (brand of phenylbutazone)
Tablets of 100 mg.

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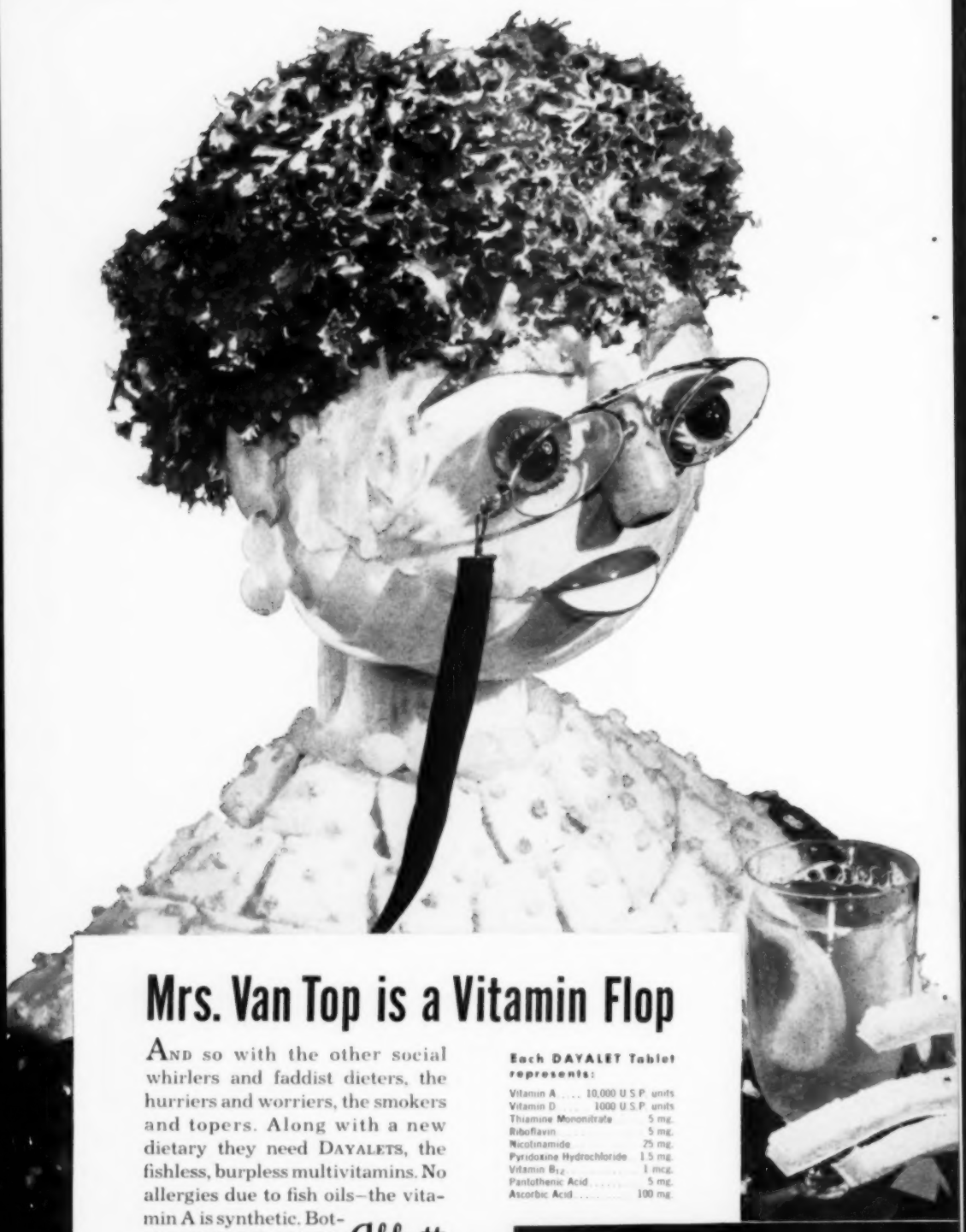

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AND so with the other social whirlers and faddist dieters, the hurriers and worriers, the smokers and topers. Along with a new dietary they need DAYALETS, the fishless, burpless multivitamins. No allergies due to fish oils—the vitamin A is synthetic. Bottles of 50, 100 and 250. Abbott

Each DAYALET Tablet represents:

Vitamin A	10,000 U.S.P. units
Vitamin D	1000 U.S.P. units
Thiamine Mononitrate	5 mg.
Riboflavin	5 mg.
Nicotinamide	25 mg.
Pyridoxine Hydrochloride	1.5 mg.
Vitamin B_{12}	1 mcg.
Pantothenic Acid	5 mg.
Ascorbic Acid	100 mg.

DAYALETS®
(Abbott's Multiple Vitamins)

Treatment of Hypertension

SIBLEY W. HOOBLER, M.D.*
Ann Arbor, Mich.

Because of the high frequency of hypertensive disease in the practice of medicine, because of the enormous variation in the severity and prognosis in this disease, it is important to arrive quickly at a working knowledge of the prognosis in a given case before selecting suitable treatment. Assuming that the less common causes of hypertension, such as chronic nephritis, pheochromocytoma, coarctation of the aorta, and a unilateral renal lesion have been excluded, the prognosis in a given case may be approximately related to three factors. These are: 1. the sex; 2. the height of blood pressure; and 3. the presence or absence of certain complications. These complications, based on the result of a study of 117 patients followed for ten years for severe essential hypertension, are a history of cerebrovascular episodes of local nature, cardiac enlargement by x-ray to more than 15% above the predicated normal transverse diameter, and the persistent presence of albuminuria.[1] The presence of these signs of vascular damage carries serious prognostic import since it was shown in the study quoted that at the same blood pressure level, the presence of these complications resulted in 80% mortality within ten years, whereas with these complications absent, there was only approximately a 20% mortality in ten years. Obviously the former group are much more in need of treatment than the latter. If complications are absent and the blood pressure level is moderately elevated, careful annual reevaluation for signs of renal, cardiac or cerebral damage may detect in the earliest stage the patient with hypertension who is going on to vascular disease and who should be treated more actively.

Three other rough categories of hypertension may be described. They include the early hyperreactor who is hypertensive on one examination and normotensive after rest or on another occasion. In the present state of our knowledge very little can be done in the way of treatment of this individual and his prognosis is excellent unless the hypertension becomes severe and well established. Therefore this sort of individual is best followed carefully and no therapy except sound mental and physical hygiene instituted. Another category is the elderly hypertensive with the high systolic pressure and relatively minor elevations of diastolic pressure. This individual probably has arteriosclerosis of the large arteries and will rarely suffer from serious complications of the disease. In addition, being elderly and with a rigid aorta, he responds poorly to various measures

* Associate Professor of Internal Medicine, University of Michigan Medical School, Ann Arbor, Michigan.

directed toward reduction of the blood pressure and will usually achieve some symptomatic improvement from drastic dietary salt restriction without it being necessary to indulge in other forms of treatment. Thirdly, there is the malignant hypertensive, used in this article to connote the patient with severe hypertension who also has papilledema. This individual is seriously ill and his prognosis is limited as shown by a number of investigators. Treatment is urgent and time should not be wasted. When papilledema occurs, irreversible renal insufficiency is not far behind. The golden opportunity for therapy lies within the time interval before renal failure occurs. No delay is to be permitted and several forms of treatment can be used simultaneously. It is my impression that sympathectomy and salt restriction should be applied immediately with appropriate drug therapy if by two to three months after surgery there is no sharp reduction in the blood pressure. The necessity of applying these measures before the kidney fails is all important. All too often the patient first presents himself with both renal failure and papilledema, but sometimes the physician is fortunate to see him in the stage just before the development of these two grave signs. It is my impression that most patients with hypertension in whom fresh exudates and fresh hemorrhages can be discovered in the eye grounds will become malignant hypertensives demonstrating papilledema in the very near future. These retinal findings, therefore, are sufficiently ominous to indicate equally urgent treatment. The presence of focal constrictions in the retinal arteries is closely associated with the "premalignant" state and patients exhibiting such features of the retinal picture deserve very careful observation.

Prolonged Treatment Table I presents a rough working classification of treatments in hypertension which should be applied in the order of preference.

In the prolonged treatment of hypertension, in addition to the beneficial effects of weight loss, mild sedation, rearrangements of the person's living habits, and other very important measures grouped under the general heading of mental hygiene, the effects of a 200 mg. sodium diet in relieving symptoms and sometimes in lowering the blood pressure are to be strongly advocated. The diet should be prescribed only to those patients who are intelligent and cooperative enough and whose living habits permit its application. The patient should be told that this is a trial only and that he must give his absolute cooperation for a period of at least three months. During this time he comes in for fortnightly visits to determine the casual and resting blood pressures, and brings with him an over-night quantitative urine specimen with the hours of the voiding carefully marked so that it may be titrated for urine chloride as a check on the adherence to the diet. When one is trying to deplete the body stores of sodium, a small lapse from diet may vitiate the effects of a week or more of "desalting." This fact must be carefully explained to the patient and his full cooperation secured in advance. In the first few weeks of the diet there will be a weight loss probably due to loss of excess fluid and the patient will be more than usually fatigued. After this time he will generally improve and many of the symptoms due to hypertension will disappear. At the end of the three month period the blood pressure should be reviewed with the patient and if reduction is not secured, it is permissible for him to relax his salt restriction. By placing the diet on a trial basis and making a conscientious effort to establish whether or not it is helping the patient, one secures better cooperation than in a random prescription of the diet without follow-up on the blood pressure or check on the urine. The technique for the estimation of the urine chloride in the over-night specimen is presented to the right (footnote 1). With adequate adherence to the prescribed

regimen the urinary chloride per 24 hours should not exceed .5 gms. It is to be emphasized that since this is a measure of chloride only salt substitutes containing chlorides or other medications containing them will, of course, interfere with urinary testing.

Sympathectomy The next form of treatment to be applied in refractory cases when the indication is adequate is sympathectomy. Although the effect of the operation on the BP is often unimpressive; from the standpoint of symptomatic improvement and reduced mortality rate from hypertensive disease there is no other treatment that is more successful over the long term. We advocate the shorter one-stage supradiaphragmatic splanchnicectomy involving as far above D8 as possible and extending the operation downward to include D12. This can be accomplished in one stage in the hospital with a minimum amount of post-operative morbidity since orthostatic hypotension is not present as the lumbar ganglia remain intact.[2] The operation is applicable to all patients without terminal complications of hypertension such as intractable congestive failure, hemiparalysis, or an elevated non-protein nitrogen. It is best limited to people under the age of 55 but may be applied in selected cases to those older than that age. The frequency of reductions of diastolic blood pressure of more than 20 mm. at a one-year post-operative observation period, is approximately 30%, with the lesser operation. It increases to as much as 66% with the more extensive procedures. It is doubtful, however, that the improvement in statistics justifies the more extensive surgery involved in these operations. Symptomatic relief particularly of headaches and cardiac symptoms is about as frequent with the lesser operation.

Drugs A great variety of drugs has been used in the treatment of hypertension in the past. Nitrates rarely are absorbed sufficiently to lower the pressure and intolerance to their effect is rapidly established. Thiocyanates undoubtedly lower the blood pressure in a substantial percentage of patients with hypertension but rarely in the more severe forms of the disease where the need is greatest. They are said to be particularly useful in hypertension associated with a high red blood cell count. The frequency of side effects such as nausea, vomiting, rash and psychoses, limits their usefulness. Among the newer drugs five different depressor drugs may be mentioned briefly, in the order of increasing effectiveness, and unfortunately of increasing side effects.

The first, *Rauwolfia serpentina*, is an alkaloid used prominently in Indian medicine. It has been extensively studied in this country by Wilkins and Judson,[3] who report a moderate and gradual reduction of blood pressure in some of the milder cases together with a reduction in sense of tension, palpitation and tachycardia. Preparations of various degrees of purity are on the market. It is impossible to quote dosages specifically. However, one to two tablets representing a half to one unit of the alkaloid taken three times a day is the usual dose. There are a few unpleasant side effects listed as nasal stuffiness, excessive fatigue and drowsiness due to overdosage, mild diarrhea, some minor visual complaints, and increased dreaming

Footnote 1—
Procedure for Urine Chloride Analysis

Measure urine volume and time of beginning and ending collection. Entire output must be collected in a salt-free container for a minimum period of 6-8 hours (usually the night preceding clinic visit).

Place 5 cc. urine and 20 cc. water in a 125 cc. Erlenmeyer flask. Add exactly 10 cc. of silver nitrate (29.061 gm./liter) and 2 cc. of indicator (100 g. ferric ammonium sulfate, 70 cc. 33% nitric acid, 30 cc. distilled water). Titrate to orange end point with ammonium thiocyanate (exactly 6.5 gm. per liter, titrated so that 2 ml. is equivalent to 1 ml. $AgNO_3$ solution). If sample darkens, add 1 drop 10% potassium permanganate to clear.

Calculations:
(20—cc. titrated) x cc. urine excr/hr. x 0.006 = gm Cl— per hour

N.B.: Salt substitutes contain Cl— and will interfere with evaluation of the diet.

in some instances. The drug appears to be relatively harmless and has valuable and somewhat unusual sedative properties, but unfortunately in itself rarely affects the blood pressure levels strikingly, particularly in severely ill hypertensive patients where such treatment is most desired.

The second of the newer drugs are the hydrogenated alkaloids of ergot. These are marketed in Europe as CCK 179 or Hydergin. They have an action in depressing essential vasocotor centers, producing moderate vagal stimulation with associated bradycardia and peripheral vasodilatation associated with nasal stuffiness and reductions in blood pressure. There are moderate orthostatic effects. The drug is not very effective in reducing the blood pressure unless given by the parenteral route and even then its effect is uncertain and tolerance is rapidly obtained. Consequently it does not appear that it will be very useful in the treatment of the average patient with hypertension.

The third drug to be considered, hydralazine, known commercially as "Apresoline," has a somewhat uncertain mode of action, probably a combination of an inhibitory effect on the vasomotor center and a direct peripheral vasodilator action. It is known that the drug is a profound vasodilator, increasing blood flow through the renal and splanchnic beds by almost twofold and increasing the cardiac output sharply. Under its influence the patient behaves somewhat as a hyperthyroid with wide pulse pressure, rapid pulse rate, a flush and some signs of excitation. Some of its effects may be attributed to an antihistaminase action which has been demonstrated in animals. Among these are a serum sickness-like syndrome with rash, joint pains, fever and grippe-like symptoms. A very severe, expanding type of headache may also represent a side effect. Nausea and vomiting are often encountered with overdosage. Patients with angina pectoris or peptic ulcer may suffer exacerbation of these symptoms under the influence of the drug. It is the only one of the agents currently available which actively dilates in a number of vascular

TABLE I

Selection of Drugs to be Used in Treatment of Different Types of Hypertension

	Reassurance Semi-annual Checkup	200 mgm. Sodium Diet	Supradiaphragmatic Sympathectomy D8-12	Rauwolfia serpentina	Apresoline	Oral Hexamethonium	Protoveratrine
Early labile hypertension; systolic BP below 200	1						
Hypertension in elderly	1	1		2			
Uncomplicated Essential Hypertension; systolic BP over 200	1	1	3	2	2	?	
Essential Hypertension with BP over 200 and:							
Cardiac failure without azotemia		1	3	?	0	2	2
Angina or coronary thrombosis		1	0	2	0	3	?
Cerebral thrombosis		1	?	?	1	0	0
Focal "encephalopathic" attacks		1	1	?	?	2	2
With papilledema and some renal failure but without azotemia		?	1		3	2	2
Renal failure with azotemia		0	0		?	0	?*

Numerals indicate order of choice of various treatments for different hypertensive syndromes. "O" indicates contraindication to use of drug.

* For symptomatic relief only.

areas. For this reason it has been particularly recommended by Taylor and co-workers[4] in the treatment of the cerebral forms of hypertension. Its renal vasodilator properties might imply that it would be indicated in hypertension or renal failure but other than increasing renal blood flow the drug is not useful in improving glomerular filtration or helping to rid the body of toxic products of protein catabolism. It is difficult to identify its field of maximal usefulness but it may be a drug well worth trying in the average hypertensive patient since dramatic improvement in a few has been observed under therapy with this agent. Because of the frequency of side effects and the necessity of pushing the drug to maximum tolerated dosage, it is well to start with very small doses, as little as 10 mg. three times a day, increasing gradually by increments of 10 to 25 mg. daily and working toward a limit of 200 mg. three times daily or to a dose just below the one which causes unpleasant side effects. When this dosage has been arrived at by the patient, it is well for him to return for blood pressure determination under the influence of the acceptable dose of the drug. If no blood pressure reductions occur at this level, the drug should probably not be used further or other attempts should be made to increase gradually the amount given. Tolerance to the drug and to its side effects may occur so that after a period of time it may be necessary to increase the dosage further in order to achieve hypotensive effects. The responses are transient, reaching a maximum about one hour after ingestion and lasting for one or more hours thereafter, and the reductions in blood pressure, therefore, last only through the day and not for the night. Prolonged treatment has not demonstrated any change in the basal level of the blood pressure. In the present state of our knowledge it can be said that about 30% of patients will tolerate the drug without unacceptable side effects and with some reduction in blood pressure toward normal. Unfortunately these individuals are largely less severe cases of hypertension, in whom the prognosis is good anyway. Patients with malignant hypertension and severe hypertensive disease often do not respond particularly well to Apresoline. Because of the antihistaminase quality of the drug it is well not to give it to patients with a pronounced allergic history or a history of drug idiosyncrasy. In our experience severe drug reactions have occurred in these individuals.

The veratrum alkaloids have been used for a considerable time in the treatment of hypertension. There is no question but what they provide the best method of blood pressure reduction so far as vascular homeostasis is concerned. The drug acts by stimulating through afferent pathways the central vagal and sympathetic centers. The result is an inhibition of sympathetic tone and a reduction of blood pressure combined with a stimulation of the cardiac vagus fibres with marked slowing of the heart leading to sinus bradycardia, and, if excessive, to various degrees of heart block. These latter effects may be sharply reversed by 1 mg. of atropine sulfate intravenously. Another evidence of vagal stimulation is nausea and vomiting which unfortunately occurs rather close to the hypotensive threshhold. Except in unusual cases, it is not possible to give veratrum drugs around the clock and achieve a blood pressure reduction without the development of severe nausea. Therefore one must resort to certain modifications of treatment. In the first place only purified alkaloids should be used since they are less apt to contain substances which do not affect the blood pressure but are emetically active. Secondly the drug should be given intermittently since blood pressure reduction usually precedes emesis and it is often possible to lower the pressure without producing the emetic action. A suitable regimen with protoveratrine has been described[5] which

is effective in intermittently lowering the blood pressure every day in about 60% of patients without serious side effects. This consists in the giving of an initial large dose of protoveratrine (0.75 to 1.25 mg.) immediately after a meal followed by small doses (.25 mg.) at 2½ and 5 hours later. If the blood pressure after three hours is not lowered, the initial dose given the next day is increased by .25 mg. daily until an effect is secured. The dose is repeated only once daily and the reinforced doses are never altered since they are simply to prolong the effect of the initial blood pressure reduction. In this way a blood pressure reduction below control levels can be secured for six to eight hours daily. It is to be emphasized that no food should be taken within two hours of any ingested dose of the veratrium compound. The treatment may be planned for the evening to relieve paroxysmal dyspnea or for the daytime to lower the maximum peaks of blood pressure under the pressure of daily activity. Tolerance does not occur and daily reductions by this regimen can be demonstrated to be beneficial in cases of recurrent hypertensive encephalopathy, and loss of vision due to hypertensive retinopathy. Renal function is not seriously impaired by this intermittent program although it is not benefitted to any considerable degree. Perhaps its greatest usefulness is in the cardiac hypertensive where slowing of the pulse rate and decrease of the peripheral resistance improves the efficiency of a damaged heart.

The final drugs to be mentioned are the hexamethonium derivatives. These drugs have three fields of usefulness as follows:

1. Treatment of acute emergencies, such as convulsions, intractable headaches, severe nausea and vomiting due to advanced hypertensive disease;

2. Restoration of compensation in a severe malignant hypertensive by short-term parenteral administration designed to reduce the blood pressure in the recumbent position for periods of two to three weeks; and

3. For the chronic long-term treatment of severe hypertensive disease.

For the acute emergency the drug should be given according to the method advocated by Fries[6] wherein 0.5 to 1 mg. per minute is given intravenously in one arm while an assistant takes the blood pressure in the other arm, the patient being in the sitting position. At the first sign of blood pressure reduction, the injection is stopped and a period of three or four minutes observation permitted to find the maximum fall which will be secured. If the fall is excessive, the patient's head is lowered and feet elevated and if recovery does not then occur, a very small amount of a pressor agent may be given intravenously through the same needle. In this way the blood pressure levels can be controlled with considerable accuracy and desired effects secured. The usual reduction of blood pressure to 150 or 160 systolic in such acute hypertensive crises leads to rapid improvement. It should be emphasized however that these emergencies are often associated with extreme sensitivity to this drug so as little as one or two mgs. intravenously may result in a sharp blood pressure fall. After sensitivity to the first intravenous dose has been established, subsequent therapy can be established by giving subcutaneously that dose which intravenously lowered the blood pressure satisfactorily. A rapidly developing tolerance occurs and it is wise to follow the blood pressure before ordering the next dose. As a general rule the dose may be increased by 5 mg. per injection which should be given every 8 hours for the short-term treatment mentioned above. When the blood pressure falls to 150 to 160 systolic at the time of maximum effect, which is usually ½ to 1½ hours after the subcutaneous injection, the dosage is stabilized until tolerance occurs when it has to be again increased. In this treatment the patient remains in bed throughout and

must be most carefully watched. These drugs act as sympathetic and parasympathetic ganglionic blocking agents and the inhibition of gastrointestinal motility may lead to paralytic ileus. A bowel movement should be secured daily by adequate saline catharsis or by Urecholine 10 mg. sublingually. If bowel movement or voiding is delayed excessively, the drug should be stopped immediately. The sympathetic paralysis leads to complete orthostatic hypotension so the patient must stay in bed and voiding and defecation may be accomplished with difficulty. Since cases selected for this form of treatment are often in incipient renal failure a suitable index of renal function such as the NPN or creatinine should be determined every other day and the treatment should be stopped immediately if an abrupt rise in these indices occurs. When the elevation is due to dehydration from vomiting or due to poor circulation in heart failure, it may improve but when it is due to irreversible kidney damage, reduction in blood pressure may actually aggravate this renal failure and plunge the patient into serious uremia. Usually after a period of two to three weeks, tolerance becomes established and reductions in blood pressure are more difficult to secure. At this time many of the symptoms of the decompensated state such as blindness, heart failure, convulsions and headaches are greatly relieved and it is possible to switch the patient to Protoveratrine or Apresoline for out-patient management. It may, however, be considered advisable to continue on hexamethonium, utilizing its orthostatic hypotensive effects in therapy. For this purpose the blood pressure should be taken in the sitting or standing position and the parenteral or oral dose adjusted to achieve a proper maximum reduction to about 150 systolic. Given subcutaneously 3 to 4 times daily, the dose must be frequently adjusted and blood pressure checked by the patient. Those patients who are sensitive to oral medication should be given 250 to 750 mg. after meals and at bed time, each dose determined by the BP just preceding it. Because of the high variability of absorption, satisfactory maintenance on oral therapy is often unsuccessful.

Summary

It will be seen from this brief review that certain types of hypertensive patients likely to have a serious prognosis, may benefit from combined therapy with diet, surgery and drugs but that no simple treatment of this disease exists and that each case deemed in need of treatment must be individualized.

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REFRESHER ARTICLE

Evaluation of the Acute Abdomen

This summarization attempts to cover the essential information on the subject and is designed as a time-saving refresher for the busy practitioner.

In all probability there are very few physicians, regardless of specialty, who do not feel some sense of challenge when called upon to evaluate the patient with an acute abdominal complaint. The manifest importance of the situation is itself conducive to bringing out the best in a physician. Here, almost always, is the place where scientific diagnostic acumen must successfully be merged with the lessons of experience. Patient re-study of one's past errors provides more information than a shelf of textbooks. Clearly a review of any kind can scarcely skim the surface in a topic such as this. A reaffirmation of old aphorisms is at times helpful, however, and a glance at some recent trends in our thinking about acute abdominal problems can be informative.

It seems fair to call the "acute abdomen" problem one in which the pathological processes involved are of such a nature that definitive care, medical or surgical, must be administered on an emergency basis. Such a problem as massive intestinal hemorrhage, as surely as a ruptured viscus or appendicitis, constitutes an emergency situation. Just what ought really to be done in many of these emergent situations is surprisingly less clear now than it was as recently as ten years ago. Witness the current attempts to evaluate the non-surgical treatment of perforated peptic ulcer; or the trend to withhold surgery when acute pancreatitis is suspected. Physicians tend to become dogmatically fond of methods with which they have had good results. This hardly seems to be a violation of good judgment, but it does enshroud the particular situations with a veil of doubts and questions. Some of this is as commendable as it is confusing, for a way out of the indecision becomes an urgent necessity. In the following discussion, an attempt will be made to recognize the dynamic factor of major importance in the genesis of various acute abdominal problems and with as clear as possible a reason, attempt to evaluate the diagnostic and therapeutic efforts presently considered useful in some specific instances.

Most People Come to Achieve a conviction that the majority of abdominal complaints which they at one time or another experience will go away if skillfully ignored or summarily treated with their favorite remedy. Medical advice is, however, usually sought when pain is severe or persisting, nausea or vomiting is disabling, or some degree of actual shock intervenes. The rapidity of treatment then becomes the patient's first desire. With this desire ringing plainly in the physician's ears, he then must set

about with dispatch to learn what he is about to treat. It is quite natural to undertake immediate measures to alleviate pain and treat evident shock and such measures must be taken, but with the full realization that always diagnosis must precede rational treatment. It becomes a little trying at times, to patient and doctor alike, to embark on a question and answer period during the peak of a patient's discomfort, but some things must be done. It is an unhappy situation that exists when no history is obtainable. The difficulty in arriving at a diagnosis of appendicitis in infants is of this type.

A close approximation of the time and type of onset of the illness, of the sequence of succeeding events, of the exact symptoms the patient has been experiencing—are of as much value as a physical examination, and often of more value. Previous similar episodes may have occurred. Previous surgery may have been pertinent to the present problem. A quick review of systems often sheds much light on a problem, if only to reveal that some underlying chronic disease has been present. A quick, competent physical examination usually helps channel the thoughts one began to formulate during the taking of the history.

It is scarcely profitable to undertake a listing of the differential diagnosis of abdominal conditions. A resumé of several specific conditions can be more helpful. One develops a pigeon-hole tendency about abdominal complaints, tending to snap to a diagnosis on the basis of a few items in the history and physical examination of such patients. Any one disease seen in varying settings may show a great variation, however, and different diseases may show the same few facets to the hasty examiner. For the most part, a real attempt at a correct diagnosis is rewarded by teaching one many aspects of the natural history of disease processes.

While the Classification is partly artificial, it is easy to think of abdominal disease in a regional fashion. Diseases of the upper abdomen bear a real relation to one another as do those of the lower abdomen. Others are almost from their inception, generalized abdominal disorders, and any localized disease of course may come to affect the entire abdomen. The importance of this rough grouping is not entirely artificial, for diseases of lower or upper abdominal organs are reflected in large part by symptoms and signs in the appropriate part of the abdomen. The anatomical bases for this fact are appreciated by all physicians and create the clues that make diagnosis reasonably possible. Acute abdominal disorders of the upper abdomen will be considered first.

The Upper Abdomen Few small areas of the body are as packed with intricate mechanical arrangements as the right upper quadrant of the abdomen. Here the pancreatic, biliary and gastric conveying systems all converge. Almost in the same area are the major bifurcations of the portal venous and arterial channels. Major para-sympathetic nerves and sympathetic plexuses richly endow the area and lymphatics are in abundance. The liver and diaphragm share the area as well as its diseases and neither kidney is far away, the right kidney at times being the cause of right upper abdominal pain. Small wonder then that the disorders of one of these organs may be hard to distinguish from those of its neighbors.

Acute biliary tract disease occurs at any age and in either sex. The fact that obese women of forty seem to claim some prerogative on gallbladder disease does not make the diagnosis of acute cholecystitis in a thin old man any less probable. In fact, it would appear that elderly males are often affected. A preceding history of fatty food intolerance and/or biliary colic is probably not too commonly seen in patients with acute cholecystitis, although such a history when present, is incriminating in a person with upper abdominal pain. Among the elderly, women with

LOCATION OF DISEASES OF THE ABDOMEN

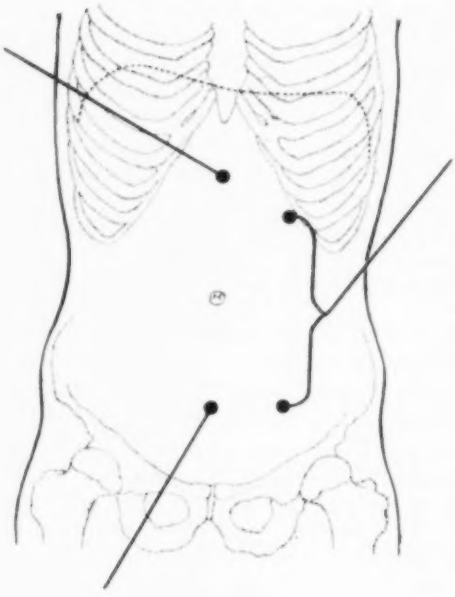
UPPER ABDOMEN

Common Diseases

Acute cholecystitis
Common duct calculi
Hepatitis
Acute renal failure
Simple active ulcer
Perforated ulcer
Pancreatitis

Less Common

Splenic infarction
Splenic rupture
Liver abscesses
Sub-diaphragmatic abscesses
Traumatic situations
Oddities among internal hernias
Spontaneous perforation of esophagus
Complications of new growths



LOWER ABDOMEN

Common

Appendicitis, Mesenteric adenitis, Intermenstrual pain (mittelschmerz), Pelvic inflamations, Early intussusceptions, Cecal perforation, Regional ileitis, Meckels' diverticulitis, Torsion of pedicle of an ovarian cyst, Ruptured ectopic pregnancy, Acute diverticulitis.

Less Common

Perforation of foreign body, of tumor, or of a segment of inflamed bowel.
Devitalized segment of bowel.

GENERALIZED ABDOMINAL PROCESSES

Gastro-Intestinal Hemorrhage

Duodenal or gastric ulcer
Esophageal varices
Gastritis
Polyps
Fibromas
Neuromas
Inflammatory processes
Intussusception
Uremia
Drug sensitivity
Polyarteritis nodosa, etc.

Diffuse Peritonitis

Rupture of a viscus
Perforated gastric or duodenal ulcer
Acute pancreatitis
Small bowel perforations following strangulation of internal hernia
Doughy abdomen of tuberculous mesenteric vascular occlusion

Intestinal Obstruction

Ileus
Fecal impaction
Left colon carcinoma
Strangulated internal hernias
External hernias
Volvulus
Intestinal adhesions

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acute cholecystitis more often have had some biliary tract symptoms in the past. An attack of acute cholecystitis is usually, not always, brought on in a diseased gall bladder where a cystic duct has become tightly plugged by a calculus. The onset of pain is more often than not rapid, and can be sudden. Such pain is usually in the epigastrium and right upper quadrant or may shift to the right upper quadrant. The pain is often felt almost from the start in the back and right shoulder. Usually some anxiety is present and unlike in the person with biliary colic, the pain and anxiety persist hour after hour, although spontaneous partial relief for

short periods does occur. The patient who really has acute cholecystitis usually does not writhe about the bed as does the one with simple colic, but is found lying flat or slightly propped up, careful to move little, taking short grunting breaths to prevent undue excursion of the diaphragm. The similarity between this picture and that of pneumonia is great. The development of atalectasis and even of right lower lobe broncho-pneumonia is a not uncommon event, even without surgical attack. A rapid pulse, some fever, dehydration in proportion to vomiting and duration of the attack are found. A suggestion of clinical icterus is often seen when the patient is examined in natural light. This is not a definite sign of common duct stone in acute cholecystitis. Persistent spasm and tenderness in the right upper quadrant will be found as the patient is observed. At least half of the time a mass can be felt in the right upper quadrant of the abdomen if the abdominal wall is not too rigid. The underlying cause of the mass is a tense, red, distended gallbladder, but the palpable mass usually develops as a result of the thickened omentum being pulled up over the gallbladder and the swollen liver edge extending downward below the rib margin. Over the years, more reports have appeared favoring early surgery for this condition. If allowed to subside the disease is an extremely protracted one. The stress of surgery is often less harmful to coexisting conditions than is the stress of prolonged observation. The incidence of free perforation is small (1-2%) but perforation is serious. Antibiotic protection is almost mandatory. While cholecystectomy is the surgical procedure of choice, cholecystostomy with removal of stones is simple and can be life saving. Emergency common duct exploration in the presence of acute cholecystitis is a hazardous undertaking. When the picture is as outlined above, one seldom needs to feel hesitant about making a diagnosis. When abdominal findings are less localized, another cause or perforation of the gallbladder is more likely, and as noted, free perforation is uncommon. There is real danger of misinterpretation of pneumonia, coronary artery occlusion, or pulmonary embolus as acute cholecystitis. Pulmonary embolism can be associated with slight icterus. With observation the mild attack or simple colic will disappear, particularly if atropine, intravenous fluid and sedation are used. The severe disease will make itself clear and there is usually time for repeated observations of the patient. Scout films of the abdomen may show calculi, bowel distension, free air or nothing of note. They require intelligent reading. A single transverse loop of dilated small bowel in the upper abdomen seen on x-ray has come to suggest the diagnosis of acute pancreatitis. This may be only part of the biliary disease, and the management of the patient had best not hinge on so little. Only in the case of colic or in the mild attack will it be convenient to obtain cholecystograms and then in a quiescent phase. Quite similar disturbance can occur when common duct obstruction due to stone is present, but it is unusual to feel a mass in such a situation. Jaundice when present is more intense, but the common duct of course can be laden with calculi or gravel in a non-icteric patient. The pain in common duct stone is a good deal more variable than in acute cholecystitis, often being almost absent, at other times being felt only in the back or epigastrium and at times in both shoulders. When the pain is predominantly or only in the left upper abdomen and back it is likely that some degree of pancreatitis is present although there may also be common duct calculi. Jaundice with chills and fever is nearly always due to common duct stone. Adequate supportive measures and antibiotic treatment had best precede surgery in such a case, the delay in preparation of the patient not being so prolonged, however, to allow severe liver damage or general

deterioration of the patient's condition. The onset of hepatitis is usually less dramatic and numerous tests of liver function are available. The constant effort to improve the differential diagnosis of jaundice has led to a lessening of clinical evaluation and concentration on liver tests and the needle biopsy of the liver. Generally a correct diagnosis can be made when study of the clinical course is given at least as much weight as are the laboratory findings. An occasional fulminating, fatal case of rapidly deepening jaundice with fever is seen in hepatitis with acute liver necrosis. There is seldom any real consideration of surgery in these cases. When one is dealing with the jaundiced patient, his full evaluation requires attention to the blood clotting mechanism, vitamin K therapy usually being indicated, preferably with knowledge of prothrombin times. Probably of even more importance is a meticulous attention to urinary function. For years the "hepato-renal syndrome" has been a puzzle and it would be convenient to offer a sure fire plan of management of this situation, but such a plan is still not available. It is important, however, to realize that replacement of fluid and electrolyte losses, no more or less, will save many lives in this sort of acute renal failure. More on a theoretical side, a stress situation calls forth not only adrenal mineralo-corticoids, but anti-diuretic hormone as well. Anti-diuretic hormone is destroyed poorly by a damaged liver, making it still more urgent for the physician to administer fluids with care. Within limits the anti-diuretic effect is not determined by electrolyte gains or losses. Such emphasis on a renal problem in a review of abdominal disease is dictated by the plain fact that many a jaundiced patient is correctly diagnosed and responds to seemingly good treatment with oliguria, uremia, and death.

It Is Not Completely Possible on any grounds to separate acute gastro-duodenal, biliary, or pancreatic disease. There are, however, some clear syndromes. The patient with an active ulcer can be acutely ill, his pain and abdominal findings often suggesting an imminent catastrophe. Epigastric pain may seem to be relieved by food, but vomiting may prevent oral intake, presumably due to pylorospasm. Such a patient more often than not will give a history of previous trouble. His upper abdomen will be spastic almost to the point of rigidity, but it can usually be found to relax for short periods on re-examination. It is not uncommon to find tenderness over the duodenum, slightly below and to the left of the area where such tenderness is found in acute cholecystitis. The maximum point of tenderness will often be elicited by gentle percussion or by equally gentle search for the point of referred rebound tenderness. An active posterior ulcer will frequently produce back pain and such pain in a patient suspected of having an ulcer suggests penetration onto the pancreas. Chemical tests indicating pancreatitis are not usually as abnormal as in acute primary pancreatitis. Such ulcers have a notorious tendency to bleed. When stool can be obtained during the rectal examination of a patient with an acute abdominal problem, a guaiac test should be done whenever possible. Successful management of the patient with a simple active ulcer can be achieved by a variety of methods. While one is fearful of free perforation, it would seem wise to avoid oral intake until such fear has been dispelled. Free perforation can be the final blow in a setting of active ulcer with pain or may occur out of the blue. The familiar picture need not be described. The careful physician usually can demonstrate free air by finding tympany over the area of liver dullness or in appropriately obtained x-rays. Free air can be missed on the x-ray if the patient has not been positioned for a period of time to allow the air to accumulate in one place. Chest film, erect and supine abdomen films, and lateral decubitus films give the most information.

Free perforation into the lesser omental sac can be deceiving, the pain being often on the left and the search for free air being confused by the gas bubble in the gastric fundus. There was formerly no question about what to do with the patient suffering from a perforated ulcer. With the advent of antibiotic therapy, better knowledge of fluid and electrolyte derangements, and improved anesthesia, the physician has become daring in two curiously opposed ways. One venture has been to treat such patients with gastric aspiration and parenteral feeding while the perforation seals off; the other has been to perform partial gastrectomy rather than simple plication of the ulcer. Briefly, it can be said that the non-operative treatment carries an enviable mortality, but leaves doubts as to diagnosis and does not prevent such complications as sub-phrenic or sub-hepatic abscess, pylephlebitis, and pulmonary embolism. Emergency partial gastrectomy appears to carry a low mortality and those who propose such management point out that a fair number of these patients eventually develop other ulcer complications requiring resection. It is still true that there are people who are never again in trouble after simple plication has been done. In any event, results are still proportional to the time lag between onset of perforation and institution of treatment.

The Most Fascinating and Perplexing Acute Disorders of the upper abdomen arise from the pancreas. These follow disturbance of the ductile action, a combination of obstruction and inflammation being most often at fault. Minimal clinical consideration has in times past been given to the lesser forms of pancreatitis. Acute hemorrhagic pancreatitis for years has been appreciated as a very serious disease. Its recognition carried a prognostication of at least a fifty per cent mortailty, regardless of treatment. When the diagnosis rests on clinical grounds alone, the disease is seen as a severe mid-abdominal and upper abdominal process, marked by great pain of steady nature, often felt in the back as well, and associated with hypotension and severe prostration. The onset is rapid and often sudden and the actual rigidity of the entire abdomen or upper abdomen is such as to suggest a perforated ulcer. Edema of the abdominal wall can be seen quite early in the disease. Inability to find free air in the peritoneal cavity is at times disconcerting, the picture so strongly mimicking that of a perforated viscus. When the abdomen is explored, a boggy, bright red pancreas is seen in an abdomen filled with fluid ranging from straw colored to sanguinopurulent. Neighboring organs share in the inflammation and areas of yellow white fat necrosis are often widespread, all this a result of digestive enzymes at work on unprotected tissues. A coexisting acute cholecystitis is often seen; stones may not be present. Inasmuch as mortality appears to vary little whether the lesser omental sac is drained, the gallbladder removed or drained, the common duct drained, the pancreatic capsule split, or the abdomen merely closed, it seems wise to do very little. If a remarkably elevated serum amylase or urinary diastase is found pre-operatively or for reasons of clinical judgment, surgery is withheld, a reasonably effective plan is available. This includes all supportive fluids and electrolytes, blood or plasma, sedation and two measures of such value as to be considered specifics in the broad sense. These are continuous gastric aspiration and regular doses of atropine or an equivalent drug. Both factors aim at decreasing pancreatic secretion.

Ileus Is So Common as to make intestinal intubation doubly worth while. Dissection of fluid retroperitoneally is common. The best efforts may be thwarted by the development of renal failure or mesenteric vein or artery thrombosis. Lesser degrees of pancreatitis are seen often. No doubt a widespread use of the amylase

test has made the diagnosis more often acceptable, but it must be given its proper place in the whole clinical picture. Pancreatitis occurs with a normal serum amylase and the amylase level can return to normal very rapidly after an attack. In association with pancreatic duct obstruction, cyst formation may occur, and the very occasional rupture of such a cyst usually comes as a surprise diagnosis to all concerned. The clinical findings in the less severe cases of pancreatitis simulate to some extent those in acute ulcer or biliary tract disease. As mentioned, some degree of pancreatitis may be a part of either of these other organ systems' disease. Failure to obtain relief from attacks of upper abdominal pain after cholecystectomy has been traced to inflammation of the head of the pancreas on several occasions. Spasm, stricture, or fibrosis at the ampulla of Vater or sphincter of Oddi may lead to recurring bouts of pancreatitis. Despite the wealth of real contributions to the management of such people, it must be realized that a final formulation has not been reached. In the process of investigation, anatomic and physiologic information of use has come to light. One gratifying observation has been that the pancreas has good powers of regeneration. Repeated inflammation leads to fibrosis and loss of functioning pancreatic tissue. If such a process can be halted, and still better, reversed, by improving drainage of the pancreatic duct system, then surgical attack to accomplish this seems justified. Precisely what form the attack shall take is now in the stage of clinical investigation. Individual evaluation of each case will make sphincter dilatation and common duct drainage the rational procedure at times. At other times, it may be sphincterotomy may appear justified. Methods which completely deflect biliary drainage from the duodenum are still under trial and the more serious cases of almost total pancreatic destruction have found relief in several instances from partial or total pancreatectomy. A disease which can be severe enough to result in drug addiction or near total incapacitation of the patient is serious enough to warrant the intense efforts being made to understand and treat it.

The Majority of Acute Abdominal Problems fall into the groups thus far considered. Many instances of the type that make interesting and isolated case reports will not be considered. Many other causes of acute upper abdominal discomfort and pain come occasionally to one's attention. Among these are splenic infarction, liver abscesses of many causes, subdiaphragmatic abscesses, oddities among the internal hernias, traumatic situations including foreign body perforation, spontaneous perforation of the esophagus, spontaneous rupture of the spleen, and the complications of new growths such as perforation of splenic or hepatic flexure carcinoma. A disproportionate amount of description need not be made. A brief reminder that subphrenic abscess is a deceiving cause of fever, especially after surgery, and shares its signs and symptoms with the thorax as well as the abdomen, is in order.

The Lower Abdomen Acute processes centering in the lower abdomen claim a good deal of most doctors' attention. Appendicitis is the major claimant to a degree where a common expression of opinion is that lower abdominal pain is "appendicitis until proved otherwise." The ultimate proof requires appendectomy. Indescriminate appendectomy fulfills the requirement only of removing a diseased appendix when a diseased appendix is at fault. The prophylaxis achieved quite probably is overrated. An attitude which favors appendectomy when there is persistent right lower quadrant tenderness has more on its side. Unquestionably, if one has rigid requirements for a diagnosis of acute appendicitis, he will treat more perforated appendices and abscesses than his less fastidious colleague. The typical history and unequivocal physical findings

are indeed seen very often, but because atypical pictures are frequent, one eventually comes to adopt some criteria for a diagnosis in the atypical cases. Such a criterion is persistent right lower quadrant tenderness. When tenderness on rectal examination is also present, the diagnosis of appendicitis must usually be made. A real attempt to be correct is laudable, for every unnecessary operation, no matter how low the mortality, may be the first in a long chain of problems consequent upon the development of intestinal adhesions. Where there is reasonable doubt that appendicitis is the cause of trouble, but surgery seems warranted, sufficient exposure places the operator in a commanding, rather than an embarrassing position. At the extremes of age, appendicitis is diagnosed with still less ease. It is not a very likely diagnosis in children under two years of age, nor is it unusually frequent in the elderly. Failure to consider it in these groups may, however, have disastrous results. The differential diagnosis of appendicitis includes so many things that only the more frequent diseases for which it is mistaken can be mentioned. Mesenteric adenitis, often in association with an upper respiratory infection, is seen very often in younger people. The diagnosis can be made many times, but again, when right lower quadrant tenderness persists, it may be unwise to await developments. The inaccuracy of diagnosis of appendicitis in women is well known. Generally, "mittelschmerz" can be diagnosed, as can specific pelvic inflammation. The low grade and recurrent pelvic inflammations are more deceptive. When tenderness on motion of the cervix is found, the diagnosis of appendicitis is made with great reluctance. Tenderness in an adnexal area with no other finding is less useful. Palpation of an adnexal mass aids diagnosis. In differentiating pelvic inflammatory disease, the history may aid, but it may be hard to obtain. Frequently, one is forced to decide whether pelvic or abdominal findings are predominant, both being present. Bilateral mild to moderate lower abdominal tenderness seldom means appendicitis. Early intussusception, cecal perforation, regional ileitis, and Meckel's diverticulitis are not so rare as to be forgotten. Torsion of the pedicle of an ovarian cyst, when it results in vascular impairment usually results in severe enough pelvic and abdominal findings to demand abdominal exploration. The history is useful in diagnosis of a ruptured ectopic pregnancy. In evaluating the patient who is suspected of having appendicitis, repeated observation of clinical findings at short intervals probably has more diagnostic value than does an elaborate collection of laboratory data. The essential blood and urine findings cannot, of course, be ignored if serious errors are to be prevented. Once again those abdominal symptoms and signs associated with pneumonia —the fever, abdominal spasm, often tenderness—make this a real differential diagnosis. This is particularly true in children. When this situation exists, abdominal findings usually subside rapidly with specific treatment of the pneumonia. Occasionally, rapid clearing of the pneumonia is not accompanied by clearing of all the abdominal findings, for while generalized spasm and guarding wane, signs come to center in the right lower abdomen. Again, when right lower quadrant tenderness persists, one must usually assume that there is a real appendicitis. Fundamentally, in dealing with appendicitis, one is dealing with an evaluation of peritoneal irritation and trying to determine whether such irritation is localized, becoming localized, or becoming generalized.

In The Left Lower Abdomen, a syndrome of left sided appendicitis exists. This picture of generalized or periumbilical pain centering in the left lower quadrant always brings to mind the diagnosis of acute diverticulitis. Just as is the case in appendicitis, bowel symptoms may vary widely, and a history of previous at-

tacks is common. The degree of toxicity and the intensity of local findings will vary with the degree of peritoneal reaction. In the case of perforation of a diverticulum however, it is not as surprising to find formation of a retroperitoneal flank abscess. Bladder irritation can be a significant finding in either disease. A clinical picture of free perforation or the less dramatic slow perforation with sealing off by the peritoneal wall can occur in carcinoma of the sigmoid colon as well as in diverticulitis. In each of these last diseases, the patient is usually in late middle life. Unlike appendicitis, acute diverticulitis is ordinarily well handled without surgery unless the complications of perforation or obstruction intervene.

There is again, a variety of less common ailments centering in the lower abdomen which call for emergency care. Some of these are detected only upon exploration because of a local or spreading peritonitis. A perforation of a foreign body, of a tumor, of a segment of inflamed bowel, or a devitalized segment of bowel from one of several uncommon causes may be discovered.

Generalized Abdominal Processes

Rather than be etiologically specific, our purpose will be served by considering three large group pictures of acute generalized abdominal disease, namely, gastrointestinal hemorrhage, diffuse peritonitis, and intestinal obstruction.

Massive intestinal bleeding is from a duodenal or gastric ulcer base in about 90% of instances. Esophageal varices probably run second, followed by a long list of uncommon situations such as gastritis, polyps, fibromas and neuromas, inflammatory processes, intussusception, uremia, drug sensitivity, polyarteritis nodosa, and so on. The evaluation of a person with severe intestinal bleeding is an active process which requires a truly open mind which must detect and weigh clinical and laboratory data afresh at frequent intervals. At some point in the process the physician will have reached a decision as to the most probable source of the bleeding and whether this bleeding is stopping or has stopped. His recommendations for further management then follow, not out of desperation, but out of a reasoned belief that these recommendations best offer a chance for survival of the patient. Regardless of the cause of bleeding, the immediate management requires bed rest, sufficient and proper sedation to allay anxiety, and intravenous plasma or some clear solution until properly cross-matched blood becomes available. Frequent observations of vital signs must be made. Antibiotic therapy is indicated to prevent hypostatic pneumonia. It is now generally conceded that enough blood must be given as soon as possible to restore blood volume. Few people now fear "blowing out a clot" by raising blood pressure to normal levels. It is wise to record urine output as well as fluid intake. Where there has been hematemesis, one usually is interested in knowing whether the vomited blood was red or of "coffee-ground" type. Where red blood has been vomited, esophageal varices are to be suspected. The history of ulcer in the past is strong evidence that the bleeding is from an ulcer; this may be associated with the vomiting of red blood, but all the bleeding may be rectal, the stool being tarry black. A history of chronic alcoholism, known cirrhosis, or the stigmata of cirrhosis found on physical examination are highly suggestive of varices. Ulcer of the stomach or duodenum probably occurs in about five per cent of cirrhotic patients. In any event, it is desirable to obtain cessation of bleeding within twenty four hours, then carefully restore the patient's general health before more specific diagnostic procedures are performed. While it is probably advisable to explore patients who do not stop bleeding within 24 to 48 hours or patients who bleed again while on rigid conservative management, there is no doubt that the risks of surgery are

greater when this surgery is done as an emergency. It is far from gratifying to perform an exploratory laparotomy as an emergency upon a patient who is bleeding from esophageal varices. Emergency management of bleeding from esophagogastric varices can often be achieved by balloon tamponade. The value of emergency transthoracic ligation of esophageal varices, is now being tested. This last is a severe test of a patient's hepatic reserve. Shunt surgery for varices probably cannot be considered a sage emergency procedure. Similarly, the routine use of emergency gastric resection for bleeding from a known ulcer, ignores the known value of conservative management in many instances.

Massive bleeding originating distal to the duodenum will rarely, if ever, be associated with hematemesis. Arising from a variety of causes as it does, it is highly desirable to obtain cessation of bleeding and at a safe interval, try to obtain a diagnosis.

If one were to pick out the change in thinking which has characterized the management of massive intestinal bleeding in recent years, it would be this: Give enough blood and give it when it is needed most.

Generalized Peritonitis is an inflammation of all serosal surfaces in the peritoneal cavity. Properly, one speaks of diffuse peritonitis when examining a patient with signs of peritoneal irritation in all of the regions accessible to examination. The irritation may follow spread of a chemical irritant or of bacteria or of both. Recognition of a diffuse peritonitis is not difficult, producing as it does reflex guarding, spasm, or rigidity in all abdominal quadrants. Tenderness all over the abdomen is expected and efforts to find an area of maximum tenderness must be skillful if a source within the abdomen is suspected. A careful history must be obtained if possible, for a non-surgical peritonitis as may accompany pneumonia or some nephroses is seldom benefited by abdominal exploration. Rupture of a viscus is a frequent cause. The viscus at fault may not be suspected because of the intensity of the physical findings in the lower abdomen which merely reflect the drainage of fluids by dependent means. Thus the findings of appendicitis may be prominent when the basic disease is a perforated gastric or duodenal ulcer. Acute pancreatitis again must be considered. Small bowel perforations following strangulation in an internal hernia may be the cause. The sequence of events, carefully elicited, can aid greatly in spotting the primary disease and aid in directing surgical attack if such is indicated. Intestinal intubation, blood, plasma and other intravenous alimentation will be indicated of course, and the use of oxygen is wise. Broad spectrum antibiotic coverage is used. The peculiarities of two types of diffuse peritonitis merit special mention. The first is the "doughy abdomen" of tuberculous peritonitis. Known or suspected tuberculosis elsewhere, particularly in genitalia or intestine lend strength to the diagnosis. The use of streptomycin in this situation currently is best arranged with the advice of a specialist in tuberculosis. The second situation is that which arises when mesenteric vascular occlusion occurs. This is often a difficult diagnosis to make, even when a sudden, catastrophic abdominal accident occurs in the individual with auricular fibrillation. Many times, a more insidious onset of lower abdominal pain, often unilateral, and becoming generalized over a period of several hours, will be accompanied by diarrhea. Occult or frank blood may be noted in the stools. The patient with Buerger's disease or with what is termed agnogenic venous thrombosis is somewhat more prone to mesenteric venous occlusion. A steady advance of this process in the course of several hours may occur, yielding to surgical attack with more success than does arterial mesenteric

occlusion. The abdominal findings are often less marked than one would anticipate, but at the same time, the degree of shock is likely to be profound out of proportion to the abdominal findings. Occasionally a large tumor mass, such as a uterine fibroid, will begin a thrombosis which ascends to the major venous channels. Sanguinous fluid is usually found in the peritoneal cavity.

Acute Intestinal Obstruction is marked by the inability of the patient to pass either feces or gas by rectum. This tells nothing of the level of the obstruction. Vomiting may not, but usually does, occur. It is of primary importance to separate mechanical obstruction from an ileus. On physical examination, visible and auditory evidence of increased motility of the bowel suggests mechanical obstruction. Periodic cramping pains may accompany these signs of increased motility. A silent abdomen suggests an ileus. This ileus may be a result of acute severe mechanical obstruction with an associated peritonitis. The x-ray patterns separating one type of obstruction from the other are now rather well known. The ladder pattern of bowel in the case of paralytic ileus is one such x-ray sign one looks for. Barium given by mouth in the presence of ileus or obstruction is a hazardous diagnostic procedure. Gentle rectal irrigation or low enemas may be followed by some passage of gas in the case of ileus, but in the case of a partial obstruction, some gas and stool may also follow the use of enemas. Digital examination will often reveal a simple fecal impaction, especially in the elderly and in patients who are subjected to prolonged immobilization. The level of a mechanical obstruction can often be surmised on the basis of the history. For example, weight loss and a history of a change in bowel habits, culminating in an acute obstruction suggests a left colon carcinoma. Sudden onset of obstruction in a patient with a previous operation weighs heavily in favor of intestinal adhesions with small bowel obstruction. A careful search for external hernias will reveal another common cause of small bowel obstruction. Survey films of the abdomen, flat and erect, usually are helpful in indicating the probable level of obstruction. Volvulus, and sometimes strangulated internal hernias, present their own picture of a closed loop obstruction on the x-ray, sometimes with an additional element of obstruction proximal to the closed loop.

While the Management of Acute Mechanical Obstruction is primarily surgical, a word about intestinal intubation is in order. Although it is true that careful management of nutrition will allow prolonged intestinal decompression, such therapy does not insure that the mechanical cause of the obstruction will be relieved when decompression has been achieved. Careful judgment of the clinical status during "tube therapy" will indicate that the period of preparation of the patient has elapsed and that necrosis of bowel is present or imminent. A conservative approach toward the management of obstruction due to adhesions is wise, but the diagnosis of adhesive obstruction does not make gangrene of the bowel and perforation an impossibility. In evaluating the patient with an acute obstruction, a real knowledge of physiology must be combined with such clinical findings as the nature of the pulse, patient's appearance, and abdominal tenderness.

The instruction derived from every abdominal emergency provides experience which no review of this kind can.

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Regional Enteritis

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Terminology and Description

The classical description by Crohn and his associates under the title Regional Ileitis focused attention on this bizarre entity.[1] Obviously, the initial impression that the disease was limited to the terminal ileum has been discarded. Removal of this restriction and recognition of other characteristics of the disease created a terminology progression which includes the following:

Regional Ileitis—Crohn[1]
Chronic Cicatrizing Enteritis[2]
Non-specific Granuloma of Ileocecal Region[3]
Chronic Regional Enteritis[4]
Terminal Ileitis[5]
Distal Ileitis[6]
Localized Hypertrophic Enteritis[7]
Segmental Enteritis[8]
Regional Cicatrizing Enteritis[9]
Jejuno-ileitis or Ileojejunitis[10]
Ileocolitis[11]
Ileitis with Segmental Colitis[12]
Stenosing Ileitis or Enteritis[12]
Chronic Ulcerative Enteritis[13]

These connotations originated from: *a)* occurrence observation in almost every portion of the mesenteric small intestine, *b)* involvement of several concomitant segments with apparently normal intervening intestine "skip areas," *c)* extension of ileal involvement into the cecum, *d)* concurrent existence in ileum and jejunum.

Characterized by concomitant necrotization and cicatrization with subacute and chronic inflammation, the entire intestinal wall is involved. Complicating perforation, obstruction and fistula formation are eventuals in progressive cases.

Crohn[18] adheres to his original concept of the disease; he feels regional ileitis is a distinct entity and should be so individualized in management.

Incidence and Related Factors

Crohn and his associates[1] first publication encompassed fourteen cases.[1] Therein are comments on earlier reports by Combe and Saunders in 1913, by Abercrombie in 1828, by Moynihan in 1907 and by many others of entities descriptively suggestive of regional enteritis. Bockus'[12] experiences were based on twenty-one cases. Kiefer found regional ileitis occurred 70 times in 100,000 Lahey Clinic registrants.

The occurrence in the Jewish race has been prominent. Bockus[12] found 13 Jewish patients in his series of 21 cases. Mixter[16] comments on this truism. Marshall,[17] however, had only three occurrences in 29 patients. Of our 68 cases, 33 were of Jewish extraction. The rarity in the Negro is indicated by Crohn's report of one case in 115 studies.[18]

Shapiro[15] surveyed 507 surgical studies. Crohn,[14] subdividing his cases, in his publication of 1949 covers 298 cases.

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In the twenty year period, at Touro Infirmary there have been 68 proven instances of chronic cicatrizing enteritis culled from a total of 276,981 admissions. Multiple admissions characterized these patients; several of the more severely ill patients had seen Crohn, Bockus, Lahey and the Mayo Clinic group, illustrating a reason for the impressive case accumulation in their respective reports.

Commenting on climatic influence, Bockus[12] was inclined to feel the entity was non existent in Latin America. This has been discounted. The disease has been encountered in all races and climates. There are no social barriers; Bockus comments on the occurrence in emigrants from Southern Europe and in those with subnutritional states. Crohn[14] has depicted the general distribution in his survey.

Hereditary factors are not dominant. Crohn extensively comments on the multiple occurrence in various relationship in families. Sibling incidence is recorded by Brown and Schifley.[4]

The entity is more frequent in youth. The average age is 29 years; 75 per cent of reported cases are in the second and third decades of life. Both extremes have been encountered. Our oldest case was 65 years and our youngest was 7 months.

Only Clark[19] recorded an equal sex incidence. Crohn,[14] Bockus[12] and Marshall[17] each indicate male predominence. This was true of our series; there were 27 females, 41 males.

Etiology The most acceptable etiologic concept is that of Hadfield.[20] An obstructive lymphedema seems primary; Crohn[14] feels it is secondary. Lymphoid hyperplasia with giant cell systems in the submucosa and related nodes is fairly constant.

Relationship to tuberculosis cannot be established. Regression without scarring or caseation is against acid fast involvement. Bockus,[12] however, hypothesizes the possibility of bovine tuberculosis overcome by host resistance having rendered susceptible the site by partial obstruction of the lymphatics.

Homans and Hass[21] find the histology suggestive of Boeck's sarcoid but this is denied by limitation.

The role of irritating and sclerosing materials in precipitating lymphatic obstructions which were concomitant with bacterial invasion and which can reproduce the histopathology is experimentally emphasized by Reichert and Mathis.[9] The reproduction of submucosal lymphoid hyperplasia similar to that encountered in regional enteritis by prolonged alimentary exposure to large quantities of finely divided sand or talc is impressively suggestive.[22]

A traumatic vascular factor resulting from self-rectifying intussusception or volvulus has been proposed by Crohn and his associates.

The conjectural relationship to appendicitis, repeatedly mentioned in early descriptions, has lost credence with the occurrence of enteritis distal to the appendix.

Acute regional enteritis as a precursor finds Felsen[6] sponsoring bacillary dysentery. Traumatic possibilities have been cited.[9] Allergy has been hypothesized etiologically.

Pathological Anatomy The surgical pathologist encounters a thick, boggy segment of rubbery consistency with a reddened serosa covered partially by exudate concurrent with adherent encircling mesenteric fat. The severe involvement may terminate abruptly but usually shades off into acute hyperemia, vascular engorgement and plastic exudate in the immediately approximating segments. The related mesentery is thick and edematous with enlarged lymph nodes and well delineated fiber-like lymph radicles. Complications, free and chronic walled off perforation, fistula formation and fibrotic and inflammatory adhesions, are anticipated in the advanced stages of the disease.

The sectioned wall shows tremendous

thickening. There is occasionally a dilated lumen but contraction to a stenotic tube is more characteristic. The mucosa may show various stages of ulceration with concomitant denudation, hyperplasia, intramural communicating abscesses and cicatrization. The submucosa is the most extensively thickened portion.

Hadfield[20] depicted the histology as extensive submucosal hyperplasia of lymphatic tissue or obstructive lymphedema. Non caseating giant cell systems devoid of acid fast organisms if not present are obliterated by the diffuse inflammatory hyperplasia with exudate, fistulas and fibrosis. The regional nodes in the earlier stages showed discrete giant cell systems regressing without caseation while in the later stages concurrent with deep ulceration a subacute lymphadenitis obliterates the giant cell system.

Clinical Picture Crohn and Bockus[12] each, by classification of the pathological progress of the disease, depict anticipated periodic syndromes.

1. Acute abdomen (appendicitis) with peritoneal irritation: The situation may be indistinguishable from acute appendicitis. Colicky pain and localized tenderness are often accompanied by a more pronounced febrile response (101° to 102°). Leukocytosis is not necessarily a concomitant. A mass is more frequently encountered with regional enteritis. Diarrhea, a rarity with an acute appendix, is common to regional enteritis.

2. Chronic ulcerative colitis: Herein the pain is lower abdominal or periumbilical, with diarrheal tendency, but rarely accompanied by tenesmus (unless rectal complications coexist) or gross melena. Delayed gastroenteric reflex stimulation of pain and diarrhea, asthenia, anemia and nutritional deficiency are a part of the disease's progression. Although fever is commonly mentioned, in our opinion, it is rare. Bockus[12] reports an instance misdiagnosed "Fever of Undetermined Origin."

3. Chronic partial obstruction: This is stated to be the clinically diagnosable phase. Obstructive symptoms of varying severity depending on location and degree of stenosis are characteristically incomplete and accompanied by a mass.

4. Complications:

a. intractable fistula.

b. abscesses.

c. free perforation.

Beyond these one usually anticipates a prolonged intermittent history and possibly an earlier diagnosis of gastrointestinal neurosis.

Symptomatology duration may be concealed by vague intermittent diarrhea, malaise or nervousness which has led to a functional diagnosis. The incidence of appendectomy scars (30.6%) suggests previous trouble in many. Suppurative rectal disease is the first manifestation in many (20%, Crohn[18]).

Diarrhea was present in 165 of Crohn's 222 cases. The second most common complaint was pain, the pain often being accompanied by a desire to defecate; peristalsis, and a defecation relief, was elicited in 126 of the 222 patients.

Nausea and emesis were surprisingly rare. Fever in 69 of the 222 cases was not a pronounced complaint. It was usually a low grade afternoon occurrence.

An unexplained anemia may be a clue to the entity and is usually existent without complaint of melena. Leukocytosis is unusual.

The general symptoms are bizarre; they are those of any chronic debilitating illness.

An analysis of our 68 cases reveals the duration to be relatively acute in 36 patients. Chronicity with symptomatology beyond four years was recorded in 32.

1. An acute abdomen misdiagnosed as acute appendicitis led to an exploratory laparotomy and surgical diagnosis in 33 cases. A presumptive diagnosis of regional enteritis was recorded in 4 instances. Ectopic pregnancy was suspected in 2 instances. The pre-operative diagnosis in

one was acute Meckel's diverticulitis. In retrospect, 26 of these cases gave a history of diarrhea. A palpable mass was recorded in five cases. Fever was present in 18 cases. Leukocytosis was definite in 26 patients.

2. Obstructive phenomena were definite in 14 patients. A correct pre-operative diagnosis was rendered in twelve. In two instances, neoplasia was presumed. All of these patients had intermittent diarrhea.

3. Massive hemorrhage occurred in two patients. In one, regional enteritis was definite pre-operatively; in the second case it was suspected. Both had intermittent diarrhea.

4. Fistula existed in three patients. One was incisional and resulted from abscess drainage, a second, intestino-intestinal, was spontaneous, the third was spontaneous and perianal in location. Diarrhea was common to all three.

5. Perforation occurred once into the free peritoneal cavity. The patient's previous symptomatology suggested ulcerative colitis with chronic diarrhea.

6. Eight patients were admitted with unexplained anemia; all had diarrhea.

Radiology Crohn[1] in his initial discussion briefed the findings to be a negative barium enema and a positive small bowel study. He depicted the obstructive findings of an ileal lesion with delayed motility (9 hours). Kantor[23] described the "string sign" that results from the stenosing lesion. Finkelstein[24] indicates roentgen limitation and has little respect for the negative x-ray study especially in the non-stenosing type. He comments on the mucosal pattern in this group: "striking nodularity," loss of mucosal pattern, stiff configuration, separation of loops, and irregular marginal outline. At times the disturbed mucosal pattern is interpreted as one of the nutritional states with flocculent or granular distribution of the barium.

The stenotic phase has some degree of diagnostic roentgen specificity. Characteristically, one encounters a long stenotic segment with a moderately dilated but stiffened proximal bowel.

A smooth symmetrical biconcave defect on the medial aspect of the cecum above and below the ileocecal stoma is assumed specific for ileocolitis or terminal ileitis. It is produced by extrinsic pressure of a thickened mesentery.

Recurrences may mimic the original lesion.

Complicating fistulous tracts and perforation when demonstrable present no diagnostic problem, being somewhat characteristic but demanding differentiation primarily from neoplasms.

Diagnosis In all instances, a pre-surgical diagnosis, in my opinion, will be purely speculative. The Jewish youth with a right abdominal mass which, though fixed, is ill defined, and who presents himself with chronic diarrhea and yet distension, would be a classic case for roentgen confirmation. Were the case more advanced, complicated by fistula, weight loss, hypoproteinemia and anemia, an impressive conclusiveness would be tolerated.

From an eliminative viewpoint, the Frei test should be negative, the chest radiologic studies normal and a search for acid-fast organisms unrewarded.

Differential Diagnosis is the study of interest in every instance suspected of regional enteritis.

1. *Chronic ulcerative colitis* can be readily diagnosed if the sigmoidoscopic picture is specific. In right sided involvement and in ileocolitis, the differentiation is not a simple matter and exacts meticulous study.

2. *Neoplasm*, especially abdominal Hodgkin's and the sarcoidoses, may simulate regional enteritis. Differentiation when a palpable mass is present is exacted. Progressiveness of Hodgkin's and sarcoidosis is contrasted with the insidiousness of enteritis.

3. *Ileocolic tuberculosis* is unusual as a primary disease. In the presence of positive pulmonary findings, the diagnosis

would be entertained. A conclusive differentiation is achieved only by demonstration of acid-fast organisms.

4. *Actinomycosis* with a chronic cecal fistula, though rare, would be a close simulant. Demonstration of actinomyces would establish the diagnosis.

5. *Amebiasis* is an established entity through demonstration of *Endameba histolytica* and should not prove difficult to differentiate.

6. *Acute abdomen* is a surgical emergency. One should not entertain aversion to exploration of regional enteritis. It is our opinion that appendectomy should be done at such exploratories, that the fear of concomitant appendicitis be eliminated from further episodes of illness.

7. *Steatorrhea*, pancreatic malignancy, chronic bacillary dysentery, irritable colon, gastrointestinal neuroses, Whipples lipodystrophy, chronic pancreatitis, deficiency states, endometriosis, enterogenous cyst, and a host of other sources of chronic diarrhea may plague the diagnostician.

The meticulous survey of all patients with chronic diarrhea with an alertness toward the early manifestations of regional enteritis will permit a presumptive diagnosis in most instances.

Prognosis In the initial acute phase of the disease one anticipates sustained resolution in less than 5.4 per cent of cases (Crohn). Some, however, may go unrecognized or be subjected to simple appendectomy. Chronicity is the ultimate for the remainder with either recurrent or persistent difficulty.

Chronicity is either an insidiously progressive state or one of intermittency with remissions of varying severity culminating in chronic active debilitating disease with complications.

The potentialities therefore may be recorded as:

a. Spontaneous permanent subsidence which cannot be, with certainty, established since recurrences have been recorded as delayed as 19 years which is the age of the entity.

b. Static or semi-arrested where the disease process remains localized. It is difficult to decide whether the manifestations are those of dysfunction or latent activity unless cicatricial stenosis occurs.

c. Progressive with possibilities being:

1. Continuity involvement.
2. "Skip" lesions.
3. Mild insidious debilitating illness.
4. Severe fulminating devastating cachectic disease.

d. Complications of any phase:

1. Free perforation — spontaneous or post-operative.
2. Hemorrhage.
3. Fistula formation.
4. Obstruction.

Obviously, as long as the etiology remains hypothetical, the therapy will be empirical and the prognosis poor in the patient who does not go into spontaneous remission.

Treatment A therapeutic program is evolved from patient individualization with election that the patient should be handled medically when the entity gives promise of relative stability and remains uncomplicated or surgically because progression is obvious or complication exists.

It is our conclusion that exploration is essential to a definitive diagnosis and is thereby justified. Appendectomy should be performed on such occasion unless contraindication exists because subsequent manifestations may be indistinguishable from appendicitis.

The uncomplicated patient should be managed medically because despite the operative enthusiasm of Lahey and Sanderson[25] the rationalization for surgery is limited to the complications of the disease.

Medical Control Therapy Determined by:

1. *Motility* In the acute phases of the illness a patient should be at complete bed rest with relative relief from all emotional and physical disturbance. Graded activity with rest periods is permissable

during recovery periods when afebrile. Ingestion of meals in the supine position has advocates. Occasionally opiates may be indicated for severe bouts of diarrhea but are best avoided because of the potentiality of habit formation. Sedation, hydragogues, antispasmodics and the anticholinergics are supplemental.

2. *Nutrition* An adequate bland, low fat, high protein regimen is favored, with all non-irritating supplements. Aminoacids, plasma, vitamins (especially the fat soluble group) and all efforts toward hyperalimentation should be persisted in. Parenteral administration may be imperative. Fat utilization is poor and intolerance thereto is great. A trial of saponification products is justified.

3. *Anemia* is best combated by replacement blood since iron preparations are tolerated poorly and are hardly adequate when persistent blood loss or toxemia drains the patient's hematologic reserve. Hemoconcentration is not unusual in view of dehydration phases and must always be considered evaluatively.

4. *Electrolytes* In severe and complicated phases fluid electrolyte loss may necessitate reasonable exactness in replacement of electrolytes along with attempts at fluid balance. The problem is a sincerely complex one in cases recurrent after extensive resections and may require such extremes as intragastric drip of an osmotic formula for maximal absorption while avoiding hyperalimentation diarrhea.

5. *Toxemia and Infection* Beyond the measures already enumerated and the generous use of blood and plasma the severe fulminating illness may necessitate steroid hormones to carry the patient through this phase. Justification for steroid therapy includes appetite stimulation, control of fever, diarrhea inhibition and increased intestinal absorption. Chemotherapy and antibiotics are indicated for control of secondary infections.

Other medical measures which may possibly be adjunctive are physiotherapy, heliotherapy, testosterone for anabolic influence, calcium administration, antihistaminics, psychotherapy and roentgenotherapy. Rowe and his associates[26] would investigate and treat patients from the viewpoint of an allergist.

One must anticipate medical complications such as hypochloremia, hypoestrinemia, acidosis, hypoproteinemia, anemia, nutritional edema and hypovitaminotic states.

Surgery is reserved for intractability, severe progressiveness or complication; therein relief and not a curative procedure is anticipated.

Operative procedures advocated are now restricted to these:

1. One stage extensive resection with enterocolostomy.

2. A two stage resection wherein an initial short circuiting procedure with or without small bowel transection precedes, by an ill defined period, "delayed" resection.

3. Simple enterocolostomy as a short circuit with or without transection of the small intestine.

Summary

The selection of a procedure may be dictated by the experience of the operator, statistical influence or the patient status. No one procedure has enjoyed immunity from condemning instances of recurrence. Advocates justify selection on their own estimates of efficacy. The Mount Sinai Group have run the gauntlet and decided finally (for the present) on a short-circuiting procedure alone. Mayo Clinic advocates persistently a two stage resection. Bockus favors single stage resection.

Transthoracic bilateral vagotomy has been commented upon as a potential control measure for related hypermotility and diarrhea. Only transient improvement in fat and antigen excretion was achieved in experimental observations.

The management of the various fistulous complications and abscess formation specifically indicates corrective measures. Beyond this, surgery is mandatory for obstructive, perforative and bleeding

extremes but hardly has dictatorial indication otherwise. Further, as in other benign ulcerative gastrointestinal entities, surgical removal or shunting does not remove the restrictions indicated by the primary lesion.

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Collagen And Degenerative Diseases

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In considering the collagen and degenerative diseases the pathologic changes seem to focus on tissues of mesenchymal origin,[1,2,3,4,5] the basic derangement being in protein metabolism. I have felt the answer to prevention and cure of these diseases lies in the definition of the etiologic factors responsible for the progressive accumulation of pathologic fibrous tissue within the body as a whole.

The recurrent implication of the purine segment of diet in patient history and the apparent clinical improvement of patients when purine intake was reduced led to a survey of the literature and to the development of the following concept as a working hypothesis for clinical studies.

It is hypothesized that:

1. Pathologic fibrous tissue accumulates, as a defense mechanism, for the storage of purines ingested in excess of excretion mechanisms and metabolic requirements.

2. Endogenous synthesis of purines is possible and adequate for metabolic requirements.

3. The miscible pool of purines is reducible by excretion and incorporation into the complex protein molecules found in combination with cholesterols, polysaccharides, phospholipids and ribosides.

4. Physiologic liquefaction of existing fibrous tissue proceeds as an orderly balanced process when excretion and metabolic demand exceed endogenous purine synthesis and dietary intake of purines except when influenced by infection, trauma, and abnormal hormonal situations.

Application of This Hypothesis to clinical and laboratory data seems to explain:

1. The role of infection: Enzymes elaborated during the metabolism of various pathogens produce fibrinoid degeneration and degradation of other protein tissue with the release of hyalin, mucopolysaccharides, ribosides, fibrin, histamine, peptones, proteoses, polypeptides, and other organic substances, the local and systemic accumulation of these by-products being in direct proportion to enzymatic activity and inversely proportional to excretion and utilization. The greatest influence of this process, on metabolic activity, would be due to suppression of the endocrine glands by hyalinization and the systemic histamine effect.

2. The decalcification associated with the collagen and degenerative diseases: Kalckar indicates in his work with purines,[6,7,8,9] that inorganic phosphate replaces the purine in the riboside-purine linkage during progressive purine oxidation and extinction. Mobilization of bone phosphates is the logical source of phosphate when the demand exceeds intake. Excretion of the released calcium and cholesterol easily explains the associated tendency for lithiasis and crystalluria.

3. The influence of therapeutic and dietary schedules on disease patterns: If fibrous tissue progressively accumulates as a defense storage mechanism for excess purines, the only symptoms and signs present, during the anabolic stage, will be

due to structural changes resulting from increased fibrous tissue, and the presence of the intermediary metabolites. Suppression of infection, moderation in diet, freedom from trauma and endocrine disturbance resultant from emotional stress and fatigue prevent disruption of this balanced state. Slow but progressive disturbance of normal physiologic mechanisms and anatomical variants from normal continue to develop during this stage. The advent of vaccines, antibiotics and sulfa drugs permits the suppression of most infections but has been attended by an increase in pulmonary fibrosis.[10] Present therapeutic schedules have proven palliative not curative in collagen and degenerative diseases. The possibility exists that suppression of fibrinoid degeneration is incompatible with a curative regimen. If the hypothesis is valid, the restriction of purine intake below excretory and utilization facilities results in physiologic liquefaction of existing pathologic fibrous tissue. During this catabolic process, dietary restriction of cholesterol, lipids, and sodium chloride favors utilization of the combined metabolites and the maintainance of normal water balance. Dietary intake of phosphates must necessarily be increased or decalcification of bone will occur during this process. This reasoning provides an explanation of the results reported by Kempner with the rice diet,[11, 12, 13, 14] and the beneficial use of low-purine diets in the treatment of cardiorenal vascular disease before the advent of modern chemotherapeutics.

To date much has been written about the use of ACTH and cortisone in the treatment of collagen diseases. The results and complications are well documented.[15-22] That fibrous tissue formation is inhibited, that peptic and duodenal ulcers are reactivated and tend to perforate, that production of insulin is suppressed, that uric acid excretion is increased, and that previously restricted joints become mobilized is repeatedly pointed out, but no one admits that liquefaction of existing fibrous tissue occurs. It seems logical, after consideration of the accumulated data, to conclude that cortisone facilitates the liquefaction of existing pathologic fibrous tissue and blocks the histamine reaction by facilitating the incorporation of amino acids and other protein elements into hyaline and amorphous ground substance. This conclusion coupled with the concept of the General Adaptation Syndrome of Selye's[23] seems to more fully explain the effect of stress.

4. The spontaneous improvement of certain diseases during pregnancy: The beneficial effect of pregnancy on rheumatoid arthritis and peptic ulcer has long been recognized. The softening of keloid scars and fibroids of the uterus has also been observed. The liquefaction and absorption of fibrous tissue during pregnancy appears to be an orderly balanced process resulting from an increased metabolic demand, the fractions being utilized in the development of the fetus.

5. The observations of: Steiner, who reported on the autopsy findings of one hundred fifty Okinawans.[24] He states, "The relative freedom of these Okinawans from degenerative diseases of the cardiovascular system was amazing. Hypertensive heart disease and malignant nephrosclerosis were not seen. Sclerosis of the aorta was found in 7 bodies, the stated ages of which were 55, 60, 65, 70, 71 and 95 years. The severity of the sclerosis was graded from 1 plus to 2.5 plus (on the basis of 4 plus as a maximum). In no instance were any of the serious complications or sequels of arteriosclerosis seen in the heart, the brain or the kidneys." He notes the paucity or absence of uterine fibroids, pathologic obesity, fibrocystic disease of the breast, prostatic hypertrophy, renal and biliary lithiasis, osteoarthritis of the spine, endocrine and metabolic disorders, and malignancy in these people. He concludes, "After the life of these people had been

studied, two possible etiologic factors appeared outstanding in explanation of these observations. They were: (1) A low tension, placid, although physically strenuous life; and (2) a simple, predominately vegetarian diet."

Clinical Application Recognizing the difficulty in obtaining chemical studies to prove the validity of this concept, I decided to fortify my basic reasoning by clinical application of this concept. Patients were to be placed on a low-purine diet and uricosuric medication in addition to schedules of therapy in force. Improvement was to be judged on the basis of objective evidence of liquefaction of pathologic fibrous tissue and long range clinical improvement. It was anticipated that symptoms referable to fibrinoid degeneration and hyalinization of the endocrine glands would occur.

During the past year I have been placing an increasingly larger number of patients on this basic diet. The total to date is approximately 300. They include patients with rheumatic fever, rheumatoid arthritis, hypertrophic arthritis, arteriosclerosis, hypertension (both essential and nephritic), diabetes, tuberous xanthomas, pathologic obesity, toxemia of pregnancy, allergic disorders, migraine headache, epilepsy, neurasthenia, osteoporosis and others with no demonstrable disease. Serial records of weight, blood pressure, E.C.G., CBS, E.S.R., skeletal x-rays, NPN, blood sugar, and blood uric acid, are being kept as completely as present facilities permit.

The following observations are consistent in this entire group of patients:

Acceptance of Diet Many patients are reluctant at first to forego meat, gravy and coffee. After a trial at restricting purine intake and finding that dairy products, vegetables and fruit satisfy their hunger and that they actually feel worse when they break off the diet, many of these patients return to a low-purine diet.

Subjective Symptoms During the initial period on dietary restriction, they experience lassitude, shortness of breath on exertion, easy fatigability, regional neuralgias, and arthralgias. Duration of this stage varies with their age, weight and the severity of their disease. The time ranges from 3 weeks to 6 months before these symptoms subside. Restriction of diet to milk, fruit, fruit juice and massive vitamin therapy shortens this period. Following this initial period an increased sense of well being, improved digestion, freedom from headaches, better sleeping habits, improved sense of balance, progressive increase in gross muscle strength and exercise tolerance are reported.

Objective Findings General appearance improves with progressive loss of fat and increase in muscle bulk. The complexion clears and sweating increases. Acne lesions subside and the secondary skin changes of patients with atopic dermatitis disappear. There is marked decrease in subcutaneous fibrous tissue as judged by palpation. Long-range skin changes include thinning of pedal calluses and disappearance of corns. Other evidence of physiologic liquefaction of fibrous tissue includes softening and absorption of subcutaneous nodules, increased joint range with progressive mobilization of periarticular tissue in rheumatoid arthritics, decrease in fibrous breast tissue, and softening of keloid scars. In the osteoarthritic group, there is a progressive liquefaction and absorption of the gelatinous matrix in tendon sheaths and bursae with increased range of motion of involved joints and the spine. Progressive mobilization of the spine in a small group of Marie-Strümpell arthritics is of particular interest. Cardiovascular renal changes noted include improved peripheral circulation with decrease in claudication and increased warmth of the feet. The hypertensive group show a decrease in both systolic and diastolic pressure. This is most rapid in younger essential hypertensives and toxemia of pregnancy. The older, obese, hypertensive arteriosclerotic

nephritics respond most rapidly if initially they are placed on Kempner's strict Rice Diet. Medication in this group has been progressively reduced as the blood pressure decreased and it has usually been possible to eliminate medication by the fourth to sixth month of observation. Rheumatic fever responds on ambulatory treatment with rapid subsiding of joint symptoms, increased exercise tolerance and progressive softening of valvular murmurs. Albuminuria decreases or disappears as the blood pressure approaches normal. Laboratory studies reveal an increased sedimentation rate in all patients tested during the initial period. There is a marked decrease in urinary sediment and calcium crystals. Red cell counts improve and hemoglobin content increases on simple iron therapy.

Specific case reports with x-rays, E.C.G. and other data will be presented later. The effect of intravenous trypsin during the initial period on diet in a group of these patients will be presented. The clearing effect of low-purine diet and uricosuric medication on cortone-induced water retention and Cushing's syndrome will be discussed at that time.

Summary

The spontaneous occurrence of physiologic liquefaction of existing pathologic fibrous tissue has been recognized. A concept of the role of ingested purines in the derangement of protein metabolism and fibrous tissue accumulation is presented as the basis for clinical studies.

The symptomatology of this group of patients during the initial period on diet is attributed to fibrinoid degeneration with release of histamine and various protein elements and suppression of the endocrine glands by hyalinization. The long range improvement is attributed to the reduction in total fibrous tissue in the body and excretion of the retained metabolites resultant from derangement of protein metabolism.

It is hoped that other General Practitioners will become interested in this study and participate in the clinical application of this concept in an effort to evaluate its validity.

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Acne Vulgaris And Its Treatment

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Acne vulgaris is seen chiefly during adolescence. It is a disease of the teens and early twenties, although it may occur at a later age. It is so common at this period that it is considered a normal condition. There is usually delay in seeking treatment. Patients are assured that the lesions will disappear.

Treatment should be instituted as soon as acne starts. The disease is slowly progressive, finally becoming severe and disfiguring. Endless annoyance is experienced by the patient.

Early evidence of the disease may be noted in the preadolescent period with comedones on the chin, nose, and forehead. As this time, the skin is oily. Later the lesions are papules and pustules. Spontaneous recovery takes place in many cases at this time. When pustules are numerous, the disease is predominantly secondarily infected. Extensive involvement affecting the chest, back, buttocks, arms, and even the axillae and groins, is seen in severe cases.

The associated seborrhea is evident. Greasy scaling and excessive oily secretion of both the face and scalp are found on examination.

There are many factors in the causation of this disease. Diet is important, revealing exacerbations of the disease on ingestion of certain foods. Seborrhea which is first seen in puberty, gives the first indication of the increased activity of the thyroid, adrenal, and gonads. Premenstrual flare-up is common. Hormones and their influence on sebacceous glands and acne vulgaris have been cited by many writers.[1-2-3] Bacteria invading the sebaceous glands, a favorite site, play an important part in the formation of pustules.[4-5] Other factors which cause exacerbations are worry, lack of sleep, constipation, ingestion of iodides and bromides, and exposure to oils, greases, and waxes.[6]

Treatment Waiting for spontaneous cure may be tragic. Early treatment both prevents or reduces the number of scars and pits. Thus, the constant source of annoyance that this disease produces in patients is avoided or miminized.

Diet The following foods frequently cause exacerbations and should be avoided:

chocolates	candies
nuts	sweets
seafood	ice cream
coffee	sharp cheese
pork	excess of fresh fruit
spiced foods	and juices

It is difficult to skin test patients with the the various foods. According to Flood,[7] exclusion diets must be followed. He usually takes away for about three weeks, pork, chocolates, tomatoes, oranges, and nuts. If improvement takes place at the end of this time, one of the forbidden foods is introduced every two or three

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days. When an exacerbation is noted, that particular food is removed. After the exacerbation has subsided, the investigation is continued.

Local Measures Comedones should be expressed and pustules and cysts should be drained by the physician. Application of lotio alba to the lesions nightly is widely used. There are many preparations containing sulfur and resorcin, prepared by various pharmaceutical houses. I usually prescribe a shake lotion containing sulfur, resorcin, boric acid, glycerin, calamine, neocalamine, witch hazel, and water. The amounts of calamine and neocalamine are varied to match the complexion of the patient. The prescription is as follows:

℞: Sulfur ppt.		6-12.0
Resorcin		2.0
Boric Acid		
Glycerin	aa	4.0
Calamine		5-15.0
Neocalamine		5-15.0
Aquae hamamelis		60.0
Aquae q. s. ad		180.0

Sig: apply b. i. d.

Applications are reduced or stopped for a short time if excessive dryness follows.

The use of warm water and a mild soap followed by cool water is advised. The use of cloths or complexion brushes is discouraged. Excessive oiliness is controlled by sponging with witch hazel or dilute alcohol.

Control of Seborrhea The care of the scalp is essential during treatment of acne vulgaris. Shampooing is advised once or twice a week and more often if necessary. I like to prescribe the following shampoo:

℞: Liq. carbonis deterg.		
Ol. ricini	aa	12.0
Tr. green soap q. s. ad		240.0

Selsun Suspension, (Abbott Laboratories) a preparation containing selenium sulfide, is valuable for the control of seborrhea. It is used during shampooing. The regular use of a shampoo may be sufficient in most mild cases of seborrhea. For the more persistent seborrhea, daily application of a scalp lotion is necessary. A suitable scalp lotion is:

℞ Resorcin monacetate	3.0
Liq. carbonis deterg.	5.0
Diluted alcohol q. s. ad	

Sig: apply daily to scalp.

In addition an ointment may be required. An example of this ointment is:

℞: Sulfur ppt.	6.0
Salicylic acid	
Aquaphor q. s. ad	

Sig: rub into scalp daily or before shampooing.

Control of Infection When the lesions are predominately pustular, wet dressings such as boric acid or Burow's solution may be indicated. If the pyogenic phase is acute, intramuscular injections aureomycin or terramycin are used. Locally of penicillin, or daily oral sulfadiazine, an ointment containing aureomycin or terramycin may be used to infected area. A course of staphylococcus vaccine often helps.[5]

Androgen-Estrogen There is considerable evidence that a shift in the androgen-estrogen ratio results in enlargement of the pilosebaceous gland, increased secretion of sebum which favors bacterial growth, increased epithelial growth and keratinization at the follicular openings. Plugging the follicles soon follows. This is due to androgenic stimulation.

Treatment with estrogenic hormones is worthwhile in females over the age of 18, who give definite histories of regular premenstral exacerbation. Daily doses of diethylstilbesterol 0.5-1 mg. or Premarin (Ayerst, McKenna & Harrison Ltd.) 0.625-1.25 mgm. are usually prescribed. Premarin, a preparation of water soluable estrogenic substances, is better tolerated. Dosage of these estrogens is adjusted to avoid unpleasant symptoms, interference or delay in menstruation. These estrogens are given daily throughout the mem-

strual cycle or for 14 days before the expected menstrual period, and then, in either procedure, withdrawing medication to allow for menstruation. Andrews *et al.*[8] have also followed a different schedule: estrogens are given for 16-18 days after menstruation followed by oral progesterone for 5 days, then withdrawing all hormones until after menstruation.

Oral estrogenic medication should be avoided in males, unless the disease is severe. Care must be taken to avoid unpleasant symptoms and signs of feminization. However, on withdrawing the estrogens, all symptoms disappear.

Topical application of estrogens is beneficial. Shapiro[9] used premarin cream containing 2.5 mgm. of the estrogen per gram of vanishing cream base. Daily application of about 5 grams was used for 1-7 months on persons refractory to all previous treatment. Whitelaw,[10] using the same preparation, found definite improvement after 6 months treatment in 55% of the males and in 21% of the females treated. Philip[11] used Acnestrol, (Dermik Pharmacal Co.) a preparation containing 1.75 mgm. of micromized diethylstibesterol dilaurate per gram of lotion. He reports excellent results in 33 out of 36 males and only 3 females improved out of 48 females.

Local use of estrogens restores the androgen-estrogen balance in the skin. The difference in response to estrogens in males and in females may be due to the fact that in males, one-third of the circulating androgen is derived from the testes, whereas in the females, all circulating androgen is derived from the adrenals.

It is difficult to evaluate estrogenic treatment. The reports are conflicting because different dosages are used, some using natural estrogens and others using artificial estrogens.

Thyroid Usually a small dose of grain ¼ daily can be prescribed without a basal metabolism test. Thyroid plays a considerable role in the keratinization process of the skin. The patient with acne who has excessive dryness of the skin, tiredness, and slow pulse, deserves a basal metabolism test and even if the basal metabolic test is at the low normal level, such a patient should be put on thyroid.

Vitamin A This is another agent which appears to play a part in the process of keratinization. It causes in some way the return to normal keratinization at the follicular openings. It is valuable in the type of acne vulgaris which has numerous comedones, small cysts, horney follicular papules, and milia-like lesions. The usual dose of vitamin A is 150,000 units daily. I have been using 50,000 units daily of the aqueous form of vitamin A. Moderate to complete healing of lesions was reported by Davidson and Sobel,[12] using 36,000-40,000 units of aqueous vitamin A daily.

Ultraviolet Ray Sunshine usually improves the patient with acne. Ultraviolet rays are just as effective. Possibly, the peeling that follows exposure to the ultraviolet lamp is responsible for the beneficial effect. Ultraviolet should be given in suberythema doses weekly or twice a week.

X-Ray Therapy This treatment is reserved for the patients in whom other therapy has failed, in whom there are deep seated pustular lesions, cysts, and in whom scarring is evident. Superficial x-ray therapy should be carried out by a dermatologist who is familiar with this therapy. There are no dangers to this treatment if carried out correctly within certain limits, using a machine which is regularly calibrated. Treatment consists of 60-75 r weekly for 8-16 treatments, giving more or less depending on the individual and the response to the treatment. G. Marshall Crawford *et al.*[13] examined 58 patients, 5-20 years after x-ray therapy. They found no evidence of any radiodermatitis. Good results were observed in 56.6% of those who received

a total dose of 800 r, 60% in those who received a total dose of 800-1000 r, and 75% were healed in the group receiving 100 r or more.

Other Measures Crude liver injections are valuable. Recently, Kutapressin (Kremers-Urban Co.) a special crude liver extract containing an unidentified factor effecting circulatory changes by cutaneous vasoconstrictive action was used by Nierman[14] with remarkable results in 22 previously resistant cases of acne. One cc., three times a week, was used for as much as 24 injections.

Anemia is found in young girls and should be corrected with iron.

Scarring may be helped by peeling with carbon dioxide slush. A simplified version of this treatment is used by Dobes[15] for the papulovesicular type of acne. Dry ice is dipped into a solution of 2 ounces of intraderm sulfur in 1 quart of acetone. This ice is applied with moderate pressure for 1 to 3 seconds with slow even strokes. Improvement was obtained, but recurrences were frequent. Wright and Gross[16] found that using only solid carbon dioxide ice on cystic lesions was effective. Involution of lesions followed after 1 or 2 treatments of 3-5 seconds duration.

Summary

An attempt has been made to point out that acne vulgaris is a complex disease in which hormonal, infectious, and metabolic factors undoubtedly play a part. Complete cure can only be obtained if several therapeutic measures are combined. Early and persistent treatment must be instituted.

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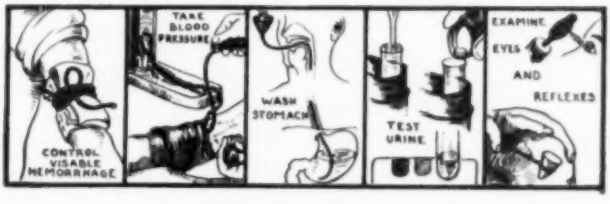

Emergency treatment of coma.

Recent Concepts On Alcoholism

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The factors contributing to alcoholism are many and complex — psychological, cultural, emotional, and the like — but the *uncontrollable* craving or appetite for alcohol which distinguishes the chronic alcoholic from other types of drinkers is believed to have an actual physiological basis and, therefore, to require physiological treatment. On this premise the problem of alcoholism is to be reviewed. The review will deal primarily with the problem of managing chronic alcoholism, and the following three aspects of the problem will be discussed: 1) Nutrition and alcoholism, 2) The endocrine basis of hormone therapy of alcoholism, and 3) The value of Tetraethylthiuram Disulfide (Antabuse) in the management of alcoholism.

The omission of such time-honored therapeutic approaches as psychoanalysis, group therapy, and superficial psychotherapy is an omission of time rather than a de-emphasis of their value, for it is generally conceded that regardless of which physiologic approach one takes in managing an alcoholic, therapeutic failure will result in the absence of a strong doctor-patient relationship.

Nutrition and Alcoholism The most recent approach to the alcoholic problem has been based on the fact that individuals are different in their nutritional wants and requirements. In Garrod's classical work, "Inborn Errors of Metabolism," he stressed the hereditary origin of biochemical differences among individuals. The concept of "genetotrophic disease," a disease of nutritional deficiency resulting from inherited peculiarities in the chemistry of metabolism, has been the result of Garrod's work.

That even among normal persons there exist distinctive individual variations in metabolic patterns was demonstrated by Williams, et al. His group tested 31 factors limited to 1) taste sensitivity, 2) salivary components, and 3) urinary constituents. Findings for these 31 factors were plotted, for each individual examined, in a chart composed of polar coordinates. Williams noted that the average hypothetical individual's chart bears no resemblance to that of any of the actual individuals — in other words, there is no such thing as a "normal or average" pattern. On the basis of these findings Williams has defined a genetotrophic disease as one in which the genetic pattern of the afflicted individual calls for an augmented supply of a particular nutrient (or nutrients) for which there develops, as a result, a nutritional deficiency even on a seemingly adequate diet.

Nutritional inadequacies may be manifested by marked changes in appetite—or even by cravings — for various types of foodstuffs. Such cases include salt craving in adrenal insufficiency; calcium hunger in parathyroid deficiency with aversion to phosphates; and the aversion to carbohydrate and protein and preference to fat in vitamin B-complex-deficient experimental animals. Williams and associates believe that the abnormal and uncontrollable

craving for alcohol may be an example of a perverted appetite resulting from nutritional deficiency.

Evidence for the genetotrophic etiology of alcoholism comes from observations on variations in human behavior and susceptibility to alcohol; and from experimental studies on alcohol consumption as affected by dietary deficiency in both human subjects and animals. In a series of experiments with rats it was found that the ad libitum consumption of 10% ethyl alcohol (offered freely with water in separate cups, the positions of which were reversed daily to insure that each liquid was drunk by choice) varies widely among animals and may be profoundly influenced by diet. For example, one group of rats on a stock diet consumed large amounts of alcohol rather consistently. Others avoided the alcohol at first but after a time drank increasing quantities. Still others drank spasmodically—heavily for a day or two, then not at all for a while, then heavily again. One rat consistently refused to drink the alcohol, and chose only water. That these variations were due to inborn differences was strongly indicated by the fact that closely inbred strains were found to show similar drinking habits. When animals from the original colonies were placed on diets lacking adequate amounts of various B vitamins, all of the animals began consuming alcohol at a high level. Finally, when these animals were placed on diets superior in vitamin content and again given a choice between water and 10% alcohol, *none* of them drank appreciable quantities of alcohol.

Studies by Beerstecher and his associates indicated that the dietary factors which were responsible for the successful control of alcoholic appetite in animals appear to be the vitamins which function in the early stages of carbohydrate metabolism (riboflavin, thiamine, and pantothenic acid) and in the utilization of amino acids as an energy source (pyridoxine). Of interest is the fact that the four above-mentioned vitamins all have hydroxyl groups which are phosphorylated in the functional form of the vitamin. Vezar has shown that the phosphorylation of riboflavin is under adrenocortical control, and that a similar situation may well hold for the conversion of the other vitamins in this group to the active coenzymes. Such a consideration may help to explain an interrelationship of the adrenal cortex with alcoholism.

Small scale clinical studies to explore metabolic traits of alcoholic and non alcoholic individuals suggest that compulsive drinkers do have common metabolic characteristics, and differ in their metabolic patterns from non-alcoholic individuals. The important items that appear to be associated with alcoholism are increased salivary sodium and uric acid, increased blood magnesium with decreased blood phosphorus, and increased taste sensitivity to salt. One question naturally arises in a study of this type — is the metabolic pattern truly a predisposing cause of alcoholism, or rather, does alcoholism cause an abnormal deviation in the metabolic pattern? Williams and other workers in this field believe the evidence is such as to indicate that individual metabolic patterns are genetically determined, and constitute a predisposition to alcoholism rather than vice versa.

Williams has utilized a "shotgun" type of nutritional therapy in his alcoholic clinic. In addition to a well-balanced high protein diet, his alcoholics take nine "nutrient capsules" per day. The content of one nutrient capsule is as follows:

Thiamine	3.3 mgm.
Riboflavin	2.67 mgm.
Nicotinamide	10.0 mgm.
Calcium pantothenate	10.0 mgm.
Pyridoxine	3.3 mgm.
Biotin	0.05 mgm.
Folic acid	1.1 mgm.
p-Aminobenzoic acid	11.0 mgm.
Inositol	53.0 mgm.
Vitamin B_{12}	5.0 mgm.
Vitamin A	6,667 I.U.
Vitamin C	33.3 mgm.
a-Tocopherol	6.67 mg.
Viosterol	333 I.U.

Unfortunately, the reports on the results of nutritional therapy have been few. Williams, in reporting 20 cases which have been followed up to 8 months, states that his "records are not completely satisfactory," and he can draw no conclusions. O'Malley et al. treated a group of 50 alcoholics by giving 25 massive doses of vitamins, and 25 placebos and concluded that there was a diminished craving for alcohol noted in the former group. Smith reporting on 6 cases treated by nutritional therapy noted a decreased desire for alcohol in all 6 when they started the treatment. In three, however, the improvement was not sustained, and these individuals reverted to the previous drinking patterns. One patient expired, and the remaining two have been sober for 10 months. No formal psychotherapy was combined in the above series.

The Endocrine Approach To Alcoholism Reports of similarities of postmortem findings between Addison's disease and delirium tremens have led to the consideration of adrenal cortical hypofunction in patients with chronic alcoholism. Goldfarb and Faber found evidence of hypoplasia of the adrenal cortex in animals in which "chronic alcoholism" was induced. Forbes and Duncan noted that an intoxicating dose of alcohol administered to normal rats and guinea pigs caused a distinct reduction in both the cholesterol and ascorbic content of the adrenal glands; however, this effect was not apparent when a similar dose of alcohol was administered to hypophysectomized rats.

These reports of pathological and chemical changes in the adrenal cortex, plus enthusiastic reports on the use of both ACTH and adrenal cortical extract (ACE) in acute and chronic alcoholism, opened the way for studies on pituitary-adrenal function in chronic alcoholics. To date, the eosinophil response to ACTH or epinephrine in alcoholics has been the main function test recorded. Smith utilized the 4 hour eosinophil test in 73 alcoholics, and reported that 75% showed a deficient response to epinephrine, and only 36% to ACTH. He concluded that the endocrine disturbance "appears to reside at the pituitary or hypothalamic level." When Smith gave 50 g. of absolute alcohol in the form of whiskey to 10 of his subjects at the same time as an injection of ACTH or epinephrine, some of the eosinophil responses became reversed, a phenomenon which he was unable to explain. Dowden and Bradbury compared the eosinophil responses to both ACTH and epinephrine in a group of 99 chronic alcoholics and a group of 40 non-alcoholic controls. No differences were noted between the two groups in the 4 hour ACTH test; however, the alcoholic group definitely showed a poorer eosinophil response in the 4 hour epinephrine test, suggesting the possibility of some deficiency in the production or release of ACTH by the pituitary. Similiar studies by Mann in a group of 95 alcoholic patients revealed that only 12% showed an abnormal eosinophil response to the 4 hour epinephrine test. Goldstein and Kidder's series of 40 alcoholics, likewise showed 17% abnormal responses to epinephrine.

J. J. Smith, who is a strong advocate of the theory that metabolic and endocrine aberrations antedate and induce alcoholism, reports the following additional evidence for this theory:

1. A large number of alcoholics have shown an abnormal water tolerance test, and many show low serum sodium and chloride.

2. Serum ascorbic acid, which is thought to be essential for adequate adrenal function, is usually low in the alcoholic.

3. Certain constitutional characteristics such as female hair distribution in male alcoholics, infantile uteri in female alcoholics, and a low incidence of acne, are frequently found in alcoholics.

4. Diabetes is rare in alcoholics.

5. Well-established alcoholism usually remits during pregnancy.

Lester and Greenberg, in a critical review of this problem, feel that the data to date are inadequate to uphold the theory of endocrine imbalance as the etiology of alcoholism. They feel that there is no concrete evidence to justify the view that endocrine malfunction is a complication of alcohol addiction. The conflicting reports on eosinophil responses in alcoholics, and the lack of other adrenal function studies are the fundamental criticisms of this endocrine theory.

In spite of the valid criticisms, the reports on the use of ACTH and ACE in alcoholism have been encouraging — particularly in the acute alcoholic states. Tinters and Lovell reported 2 cases of delirium tremens, 1 case of severe acute alcoholic stupor, and 1 case of acute alcoholic intoxication both successfully treated with ACE. Their cases both responded so dramatically that sedation, infusions, and vitamin therapy were not necessary as adjuncts in treatment. Binswanger and Kunz reported 12 cases of acute alcoholism (one with delirium tremens) who were treated with intramuscular injections of 60 mg. of substance S-acetate and intravenous injections of 1 g. of Redoxon. The clinical improvement in all 12 patients was striking—sedation, appearance of appetite and reduction in tremor being the criteria of clinical improvement. Simon and Pearson reported the use of ACE in 14 patients in acute alcoholic states, and noted favorable response in all. They used no other therapeutic adjuncts in their series, as they deemed them not necessary. They were particularly impressed with the beneficial influence on the following symptoms: visual and auditory hallucinations, delusions of persecution, generalized tremor, insomnia, anorexia, and disorientation. McAllister used intravenous ACE and ascorbic acid in 100 cases of acute alcoholism, and reported excellent results in all cases; however, weekly injections of ACE had no effect in preventing further alcoholic bouts. Fischbach, et al., reported two case histories to illustrate the futility of attempted sedation in delirium tremens. ACE given to these patients did not alter the clinical course; however, slow infusion of 1000 cc. of 5% glucose with 25 mgm. of ACTH resulted in dramatic improvement.

J. J. Smith enthusiastically reports that with the availability of ACE and ACTH the treatment of acute alcoholism no longer presents a problem. Intravenous ACE is the drug of choice in patients with acute alcoholic intoxication, acute alcoholic hallucinosis, or acute Korsakoff psychosis; whereas ACTH is best utilized in delirium tremens. Smith advises 20 to 60 cc. of ACE, in divided dosage, be given over the first 24 hours. The drug should be given intravenously, or put into an infusion flask. Vitamin C, 1.0 Gm., should be given concomitantly either by mouth or by vein. In the succeeding 24 hours, 5-15 cc. of ACE may be given, I.V., or I.M. In delirium tremens 100 to 150 mgm. of ACTH given I.V. or I.M., in divided doses over a 24 hour period is recommended. The patient begins to show improvement within 6-12 hours. Infusions with Vitamin C may hasten recovery, but ACTH will terminate delirium tremens on its own.

Hangover, which is not peculiar to alcoholics but which is a sequel to overindulgence in alcohol by any person, can be abolished quite readily with the use of ACE, either I.M., or I.V., depending on the severity of the symptoms. Usually 5-15 cc. of ACE in divided doses over a 12 hour period abolish the hangover. Vitamin C, 100 mgm., q 3h may be taken at the same time.

Available reports on the use of hormonal therapy in chronic alcoholism, and long-term follow up studies of this therapy are lacking. Goldstein and Kidder have treated 13 chronic alcoholics with maintenance doses of ACE, 2 c.c. parenterally, b.i.w. Periods of treatment ranged from

one to six months. Of the 13, 6 have continued to relapse into an alcoholic state; 2 have remained "dry"; and 5 have "improved." All patients, while on ACE therapy, have stated that tension, anxiety and insomnia were diminished. J. J. Smith, in reporting the use of ACTH, 25 mg., t.i.w., on 25 patients, noted the following: 8 had to be discontinued because of undesirable side effects. The remaining 17 patients have been under treatment for 2 to 8 months and are responding well; the incidence of drinking episodes has been reduced and their duration shortened. Thimann administered ACE to 22 chronic alcoholics. Of these 27% have maintained sobriety for 2 to 19 months, 1 patient is improved, and 41% are outright failures.

Rational interpretation of present knowledge allows only the statement that if endocrine malfunction is present in an alcoholic it is probably a complication rather than the cause of the alcohol addiction. In view of the enthusiastic reports on the efficiency of adrenal hormones in acute alcoholic states, it is manifestly important to follow further studies on the exact nature of any endocrine pathology in the alcoholic, because such studies do have bearing on rational therapy.

Antabuse Tetraethylthiuram Disulfide (TETD, or Antabuse) has been under clinical investigation for its sensitizing effect toward ethyl alcohol as described first in 1948 by Hald, Jacobsen and Larsen. The reaction in humans when alcohol is ingested after pretreatment with TETD is invariably accompanied by dilation of the vessels (mainly in the face) tachycardia, dyspnea, and tachypnea. The blood pressure shows the most significant changes. After a short rise, it is followed by a sharp and prolonged drop. The diastolic pressure often drops to zero, the systolic pressure to between 60 and 80 mm. Hg.

It should be recognized that TETD is a form of aversion therapy, similar to previous conditioned aversion forms of therapy such as ipecac, apomorphine, and emetine, but differing from these emetics in that its use does not include the conditioning factor. Furthermore, TETD does not offer any clue toward the etiology of alcoholism.

Mechanism of Action In brief review, the first step in the metabolism of ethyl alcohol is its oxidation to acetaldehyde which, in turn, is oxidized to acetic acid; the second step proceeds at a much higher rate than the first with the result that normally the acetaldehyde concentration in the blood is low. Acetic acid is a normal intermediate in the oxidation of fats and carbohydrates, and this fact explains why alcohol can replace the calorie-producing factors of normal nutrition. Oxidation of alcohol to acetaldehyde proceeds mostly in the liver. There are two enzyme systems believed most likely to be responsible for this oxidation. Dehydrogenation catalyzed by alcoholic dehydrogenase is believed to play the major role in this process, while a reaction with hydrogen peroxide catalyzed by catalase may play a minor one.

The mechanism of the toxic reaction to alcohol in patients treated with TETD is not completely understood, but an increase in acetaldehyde in the blood is believed to be one of the more significant factors. Hine, et al., have shown that the blood acetaldehyde level in a group of 41 subjects medicated with TETD alone was 28 micrograms/100 cc.; whereas the level in a control group was 92 micrograms per 100 cc. After alcohol ingestion the level in the control group was 200 micrograms/100 cc. while in the TETD-treated group it was 450. It has further been shown that the administration of acetaldehyde results in symptomatology similar to that noted in the TETD-alcohol reaction. Several reports have shown that TETD inhibits liver aldehyde. The conclusion has therefore prevailed that TETD is fixed to the aldehyde oxidases in the liver. For this reason the oxidation of acetaldehyde, formed dur-

ing normal alcohol metabolism, is delayed. Therefore we obtain an increased concentration of acetaldehyde in the organism, and the increased acetaldehydemia causes in its turn the disagreeable effects after alcohol on which the therapeutical use of TETD is based.

Several discrepancies in the above observed facts have been noted, and the feeling is that the mechanism of the TETD-alcohol reaction is more complex than the above theory would have us believe. The discrepant facts are: 1) that the toxic symptoms have been known to occur in patients with low blood acetaldehyde levels, 2) that patients with extremely high acetaldehyde levels may be asymptomatic, and 3) that these toxic symptoms can be rapidly abolished by intravenously administered iron salts, although no changes occur in the elevated acetaldehyde levels in the blood.

Christensen, paying particular attention to the latter discrepancy and to the fact that acetaldehyde is a potent sympathomimetic drug, investigated, in dogs, records of the action of acetaldehyde with and without TETD, and the influence of iron salts on the experimental conditions observed. Nor-epinephrine was used for comparison of action. Christensen concluded from his studies that the action of TETD on acetaldehyde or nor-epinephrine was to prolong the vasodilating phase of these drugs, producing a pronounced fall in blood pressure. He hypothesized that the action of TETD is to alter the response of specific sympathomimetic receptor calls to the sympathomimetic action of acetaldehyde. Injection of iron salts intravenously tends immediately to reverse the phase of prolonged blood pressure fall in spite of the fact that there is no change in the acetaldehyde blood level. This may be explained by the fact that TETD easily combines with heavy metals to form insoluble compounds, thus eliminating its action on the specific vasodilating receptor cells of the sympathetic system. The report that metal workers do not necessarily react to treatment with TETD, is additional evidence that TETD forms insoluble compounds with iron and other metals.

Method and Dosage of TETD Therapy The treatment procedure may be carried out either in the hospital or on an out-patient basis, individually or in group form. A typical regimen is as follows: After 24 hours of abstinence the patient is gievn 1.0 g. of TETD daily for 4 days. On the 4th day he receives 100 to 125 g. of wine containing 10% alcohol to provoke a reaction. The medication is continued and a second reaction is provoked after 8 days. The maintenance dose of TETD is adjusted in accordance with the severity of the reaction; in the majority of the cases it is 0.25 g. to 0.5 g. daily.

Prior to initiating therapy a detailed history, complete physical examination, CBC, urinalysis, and EKG are indicated. It is inadvisable to produce more than 2 test reactions, because there is a definite correlation between the severity of the reactions and the frequency of the reactions. A physician and a trained nurse should always be present when the test drink is given.

Signs and Symptoms of the TETD-Alcohol Reaction Usually the main signs and symptoms begin five minutes after ingestion of alcohol. The initial symptom is flushing of the head and neck, which later spreads downward to cover the entire body. This is accompanied by a sensation of warmth and sweating. There is a hyperemia of the conjunctivas, dyspnea, hyperpaea, dizziness, severe headache, tachycardia, and a fall in blood pressure. The patient often complains of palpitation, marked difficulty in breathing, and chest pain. Occasionally, a dry cough is associated. Later he becomes nauseated, often vomits, and then falls asleep. More violent reactions, including convulsions,

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unconsciousness, and collapse, are not infrequent.

Treatment of the Alcohol-TETD Reaction is basically the emergency treatment of shock. Immediate elevation to the shock position, artificial respiration with oxygen inhalation, and a glucose-saline infusion are all indicated. In addition, much reliance has been placed on the intravenous injection of ferrous chloride and ascorbic acid (1000 mg.) as specific antidotes for the reaction. Controlled studies by Lester, Conway, and Mann indicate that iron and Vitamin C are of little value in counteracting the reaction.

Reports of Toxicity Effects due to TETD alone include fatigue (in 36%), drowsiness (in 11%), "indigestion" (in 12%), headache (in 8.5%), vertigo (8.7%), and decreased potency (9.7%). In most cases these symptoms disappeared after the maintenance dose of TETD was diminished, and it is generally agreed that these symptoms are no indication for discontinuing therapy.

As reports on severe complications, including death, of the alcohol-TETD syndrome pile up, one may justifiably conclude that the danger of TETD therapy is much severer than earlier reports had led one to suspect. The most dramatic and alarming of such reports are as follows:

1. Oversensitiveness to the drug — several papers have reported severe circulatory collapse rendering the patient cyanotic, pulseless and unconscious following the ingestion of 8 cc of alcohol. In this regard, it is of interest to note that 2 cases of the TETD-alcohol syndrome following the use of after-shave lotion have been reported.
2. Psychosis.
3. Hemiplegia—presumably due to cerebral thrombosis.
4. Neuritis.
5. Recurrent epileptic attacks.
6. Cardiac manifestations — Duncan reported EKG changes in 18 observed TETD-alcohol reactions. Two tracing were normal; 11 revealed sinus tachycardia with rates up to 150; 4 revealed auricular flutter; and 1 had diffuse T wave changes and was interpreted as ischemia. Machlin, et al. took EKG's on 55 patients undergoing the TETD-alcohol syndrome. Three had changes of myocardial ischemia; in one a shifting sinus and nodal rhythm developed; in 3 frequent premature ventricular contractions were noted; and 1 patient developed acute myocardial infarction.

Jacobsen recently reviewed the causes of death ascribable to TETD therapy. In all, there have been 26 deaths since TETD was first introduced. Nine of these deaths occurred shortly after the TETD-alcohol syndrome, and at autopsy no explanation for cause of death was found. In four of the cases cerebral hemorrhage was the cause of death. The other causes of death were as follows: suicide, 4; bromide poisoning, 1; bromide and morphine, 2; heart failure, 1; liver atrophy, 2; cerebral embolism, 1; and diabetic coma, 2. In the two cases of diabetes, this disorder had not been diagnosed until the patients were found in coma. Lauritzen and Rahy showed that TETD has no influence on the insulin requirement, or the blood sugar curve of diabetics; therefore it seems wise to not attribute these 2 deaths directly to TETD therapy.

Contraindications to Therapy From the above report on toxicity, one may assume many contraindications to the use of TETD. Various authors differ in listing their contraindications. On one extreme, the enthusiasm of Jacobsen and Martensen-Larsen for the drug have led them to be less cautious, and they state that "no absolute contraindications have been seen thus far, but, perhaps, some caution is necessary in persons with heart failure." On the other extreme, Glud's conservatism has led to the following list of contraindications:

1. Myocardial failure.
2. Coronary disease.
3. Cirrhosis.
4. Chronic or acute nephritis.
5. Epilepsy
6. Goiter.
7. Pregnancy.
8. Drug addiction.
9. Diabetes mellitus.
10. Asthma

From the psychiatric standpoint the contraindications may be summarized as follows:

1. The existence of a major psychosis, or evidence suggesting a potential psychotic state such as early paranoid elaboration, schizoid traits, or sadomasochistic trends.

2. The failure to recognize a need for help, with the creation of specific projective barriers against help.

3. The expression of ambivalence by the patient toward the use of TETD.

Results of TETD Therapy It is of interest to review some of the reported clinical results with TETD in order to evaluate this drug. Dale and Ebaugh state that the 6 month period follow-up results of 223 alcoholic patients reveal that 144 are considered as recovered, 48 as somewhat better, and 31 as unchanged. Psychotherapy was given to this group for the first 6 weeks of treatment. They conclude that the psychological effects of taking the pill to prevent drinking have more importance than the physiological effect. Jacobson and Marten-Larsen, in a study of 100 persons with alcoholism treated and observed for six months or more, felt that 52 could be considered as socially recovered and 19 as much better. They state that the medication must be combined with intensive psychotherapy in order to obtain permanent results. Solms reported on 50 cases in whom TETD was used as an adjunct to psychotherapy. Of this group 8 are considered as "mild" cases of alcoholism; these have remained abstinent for 1 to 18 months. Of the 27 "severe" cases, 19 have remained abstinent for 1 to 15 months; and of the 15 "severest" cases, 5 have been abstinent for 3 to 12 months. Aitoff, using TETD as a form of conditioned-reflex aversion (i.e. provoking reactions 3-4 times a week) reports the following on 152 patients: 54 have been abstinent for 9 to 21 months, 28 others have returned to treatment after a relapse, and 70 are failures. Moore, reporting on 71 cases, states that 59 were known to be abstinent 6 to 29 months after discharge. He emphasized the fact that TETD therapy was a technical procedure under cover of which psychotherapy and continued surveillance were readily accepted by the patient.

In evaluating the above-mentioned clinical reports, several non-controlled variables should be mentioned. In none of the reported series was TETD used without the aid of psychotherapy. It is also important to note that in but one of the clinical reports mentioned are the previous drinking habits of the patient described. Were they sporadic drinkers? Were they continuous drinkers? Had they ever had episodes of abstinence before? If so, how long did these episodes last? These questions must be answered and taken into consideration in any critical evaluation of the treatment.

Summary

It is certain that TETD is not a panacea for all alcoholic ills. On the enthusiastic side, one may state that in proper hands it is a valuable adjunct for psychotherapy. On the pessimistic side, one must realize that it is a relatively dangerous and potentially fatal drug, and is not to be dispensed in maintenance dosages like digitalis. At most it may be another tool, still unproved, for the physician willing to devote time to the care of the patient with chronic alcoholism.

Alcoholism as a genetotrophic disease, while an intriguing theory, must await the test of time for its final evaluation.

The data on alcoholism as an endocrinopathy suggests that adrenal hypofunction may be a secondary phenom-

enon, but is hardly an etiological factor. Of promise, is the hormonal therapy of acute alcoholic states.

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Great Improvement in Health Level of Latin American Countries Cited

A remarkable improvement in the health level of South and Latin American countries due to growing availability of medicines and vitamins from the United States and rapid development of medical and nutritional research programs was cited recently.

"Probably nowhere in the world has there been such a rapid increase in building of hospitals and research centers and in broad regional and national studies of nutrition and other health problems," Mr. I. A. Botty, vice president of U.S. Vitamin Corporation, stated upon the completion of a trip of more than six months in the Latin American countries.

Mr. Botty, a veteran of more than 30 years in the Latin American and world export field, and who set up the U.S. Vitamin pioneering system for introduction of vitamins and other ethical products to Latin American doctors.

Mr. Botty stated that the greatest growth in medical research in the Latin American countries had come in the past decade. He recalled that when he first began introduction of pharmaceuticals to Latin American doctors for the U.S. Vitamin Corporation in 1941, with the help of Dr. Casimir Funk, scientific director of the Corporation, who is widely known as the "Father of Vitamins," but a handful of American pharmaceutical laboratories had organized such programs in Latin America.

Today, however, he added, not only most of the major American pharmaceutical companies are conducting research programs in cooperation with Latin American institutions and scientists, but great help is also coming from leading United States foundations for medical and nutrition research.

The Pathogenesis of Essential Hypertension

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"By hypertension is meant a sustained increase in blood pressure extending over a period of months and years; like fever and leukocytosis, it is a sign of disease and not a disease in itself."(20) Approximately 15 million people in the United States are estimated to have hypertension. The death rate from arteriosclerotic disease of the brain, heart, and kidneys, associated with the symptoms of hypertension, is very high, about four times that of cancer. In males over fifty, 25% of deaths is associated with this condition. Approximately 5% of patients with hypertension have their increased blood pressure on the basis of a known, although incompletely understood, cause. The vast majority have their hypertension as the result of unknown cause or causes. They are said to have "essential hypertension"—a term comparable to "fever of unknown origin." According to Wakerlin, "hypertensive vascular disease" is a better term for this condition since it emphasizes the basic pathophysiologic disturbance rather than one of its measurable signs.

Hypertension of known etiology can best be classified into renal, cerebral or neurogenic, endocrine, and cardiovascular. In the following outline the various subgroups of these types will be briefly mentioned:

1. Renal Hypertension

A. Vascular anomalies and obstruction to renal circulation, polycystic renal disease.

B. Acute and chronic glomerulonephritis.

C. Pyelonephritis.

D. Diseases of perinephric structures. (1) Perinephritis (2) Tumors and other masses causing pressure on renal parenchyma.

2. Cerebral or Neurogenic Hypertension

A. Increased intracranial pressure as a consequence of trauma, tumor, or inflammation.

B. Lesions of diencephalon and/or the brain stem (Very recently evidence has been presented for secretion of a pressor hormone by brain tissue which may play a role in this type of hypertension.)

3. Hypertension of Endocrine Origin

A. Pituitary basophilism

B. Adreno-cortical tumors

C. Pheochromocytomas

4. Cardiovascular Hypertension

Coarctation of the aorta — probably partly on basis of increased resistance due to aortic constriction. In some cases where constriction is in the lower thoracic or upper abdominal aorta, a renal factor similar to that of experimental renal hypertension may be involved.

It is important to differentiate these from essential hypertension, since in the former a complete cure of the hypertension is at

times possible whereas therapy of the essential type is less satisfactory.

We will first consider the pathophysiology of essential hypertension. When this condition is uncomplicated, the cardiac output, blood volume, and blood viscosity are normal and in early hypertension the elasticity of arteries is more or less normal for the particular age group of the patient. The fundamental hemodynamic alteration in hypertension is an increased resistance to the outflow of blood in some part of the systemic arteriolar bed. This leads to elevation of diastolic blood pressure which represents "the residual impelling force in the circulation during cardiac diastole." In order to make a diagnosis of hypertension, therefore, there must be an abnormal elevation of diastolic blood pressure. There is usually a concomitant elevation of systolic blood pressure. In early essential hypertension the arteriolar narrowing results from generalized arteriolar vasoconstriction due to vasospasm but as the hypertension continues the increased peripheral resistance becomes partially due to progressive arteriosclerosis in the kidneys, spleen, pancreas, liver, and brain. Hypertension also appears to accelerate progress of arteriosclerotic changes in the larger arteries, including the aorta, coronaries, and cerebral arteries. Effective peripheral resistance can be increased by various unidentified mechanisms and it is probable that the mechanisms vary in different hypertensive patients. Much information concerning the etiology of essential hypertension has been accumulated as a result of research. The purpose of this paper is to examine this material and attempt to organize it in order that we may understand where we stand and in what directions we can expect to go in the future.

The various theories as to the cause of increased arteriolar resistance can be divided into the following groups:

1. Role of Psyche
2. Vasomotor Mechanisms—Neurogenic Factors
3. Humoral Mechanisms
   - A. Renal
   - B. Hepatic: VEM-VDM system
   - C. Other pressor substances
     1. Sustained pressor substance (SPS)
     2. Pressor amines
     3. Pherentasin
     4. Encephalin
   - D. Adrenal Cortex

Role of Psyche The role of the psyche in the development of hypertension has been emphasized by Schroeder. He feels that essential hypertension is a psychosomatic disorder with the influence of the psychic and nervous system as the common underlying etiologic factor. The sustaining factors, he feels, include neurogenic, nephrogenic, and adrenocorticogenic influences concerned in maintaining elevation of the blood pressure. His studies have shown that there appears to be present in almost all cases of primary arterial hypertension certain alterations of personality which are quite consistent. Of course, these disturbances may be secondary to hypertension instead of being involved in its causation. However, many of these cases were in early mild stages of the disease and there were evidences of this structure of personality discernible before hypertension made its appearance. Therefore a causal relationship is implied.

Vasomotor Mechanisms We shall next consider the role of the vasomotor mechanism in the etiology of hypertension. The so-called vasomotor centers are aggregates of specialized neurones distributed in the brain and brain stem, the best defined being the medullary center. These centers respond to a variety of controls: neural impulses from cortex and thalamus, respiratory centers, central and peripheral chemoreceptors, and humoral influences which enter the brain in the blood. The pathways of pressor discharge from these centers lead through cells of lateral horn of cord, the dorso-lumbar, and peripheral sympathetic ganglia to sympathetic vasomotor neurones and the adrenal medulla.

Ganglionic transmission depends upon release of acetylcholine around the cell bodies of terminal neurones. This can be suppressed by substances like tetracthyl ammonium chloride which competes with acetylcholine at this point. The peripheral vasomotor discharge is probably accomplished by release around cells in the vessel wall or into the adrenal vein of a mixture of adrenaline and noradrenaline.

Adrenaline is the major component of adrenal medullary secretion, and the more active metabolically; noradrenaline is secreted by vasomotor nerve endings and is a more consistent, powerful vasoconstrictor. The brief outline herewith will serve to compare these hormones.

Because of the hemodynamic properties of noradrenaline, increased sympathetic vasomotor discharge as a mechanism of hypertension must be seriously considered.

Evidence pointing to role of nervous system in hypertension consists of:

1. Blocking agents will lower blood pressure by interruption of neurogenic impulses in ganglia.

2. Extensive sympathectomy sometimes abolishes hypertension for several years.

3. Blood pressure may be extremely variable in some hypertensives independent of cardiac output.

Humoral Mechanisms: Renal

While blood pressure in susceptible individuals may rise acutely as a result of generalized neurogenic vasoconstriction, the other factors which control blood pressure more slowly probably account for most of the prolonged changes which occur. Kidneys have been implicated by many men who have worked in this field.

The story of the renin-angiotonin pressor system had its beginning in 1898 when Tigerstedt showed that saline extract of fresh rabbit kidneys when injected into anesthetized rabbits produced a rise in blood pressure. The work was confirmed in 1909 by Bengel and Strauss.

Goldblatt found that by constriction of one main renal artery by means of surgical clamp, the blood pressure became elevated in 24-72 hours, but usually lasted for only six weeks. Removal of the kidney with renal artery constricted resulted in prompt return of blood pressure to normal. To make the hypertension persist, it was found necessary to constrict the main artery of both kidneys or to constrict the main artery of one kidney and remove the other. By moderate constriction of both main renal arteries, the so-called "benign phase of experimental renal hypertension" was produced. Both the systolic and disastolic pressures were found to be elevated. Most of the animals demonstrated little or no decrease of renal excretory function. Thus it was shown experimentally that by disturbance of the intrarenal hemodynamics hypertension was produced which, although obviously of renal origin, had no accompanying disturbance of renal excretory function. This suggested the possibility that essential human hypertension, usually associated

Adrenaline	Nor-adrenaline
1. greater effect on heart muscle—sometimes vasodilator to coronaries 2. gylcogenolytic 3. stimulus to metabolic rate and ACTH release 4. elicits an affect of apprehension and anxiety 5. more susceptible to adrenergic blocking agents	1. consistently increases both total and regional arteriolar resistance 2. little extravascular metabolic or psychic effect

with intrarenal arteriolosclerosis but without impairment of renal excretory function, might also be of renal origin.

Great constriction of both main renal arteries resulted in the "malignant phase of experimental renal hypertension," wherein there is elevation of blood pressure, along with a variable degree of impaired renal excretory function. In those animals who died from uremia, changes were found at post mortem which resemble those observed in the malignant phase of essential hypertension.

In the benign phase with moderate constriction without renal excretory insufficiency, the kidneys may show little, if any, significant gross or microscopic abnormalities. Pathological changes in the kidney were found, therefore, to be unnecessary for development of benign experimental renal hypertension. It is conceivable that intracellular changes not detectable by usual methods have occurred, with alterations in the intracellular enzymes. In the malignant phase profound parenchymatous degeneration or diffuse necrosis with or without hemorrhage was seen.

The earliest indication that there might be a humoral mechanism in the development of experimental renal hypertension was seen when the renal veins were tied off in dogs with the main renal arteries constricted adequately to produce hypertension. They died in from 2-7 days from uremia; yet at no time did they show any elevation of blood pressure. It has been shown that interference with blood supply to any other organ but the kidney does not result in either temporary or permanent elevation of blood pressure. Azotemia is not responsible since removal of both kidneys is not followed by hypertension. The possible humoral mechanism was demonstrated more directly by the transplantation of a kidney to the neck or groin of a bilaterally nephrectomized dog or rabbit. When the renal artery of the transplanted kidney, with no nervous connection to the rest of the body, was constricted a pressor effect resulted after the usual interval. This indicated that some chemical substance from the ischemic kidney capable of bringing about peripheral vasoconstriction had been washed into the circulation.

To this substance, Tigerstedt had given the name "renin." Prinzmental and others found that there was a greater amount of this substance in the kidneys of dogs with experimental renal hypertension.

Renin, however, lacked any direct vasomotor property for it had no effect on the vascular system when it was dissolved in saline and perfused through a part of a dog from which the blood had been washed out. Two independent groups of investigators led by Braun-Menendez and Page discovered that renin is not directly pressor and that its effect is due to the reaction with a substrate in the blood and formation of an entirely new substance with pressor properties. The South American investigators named this substance "hypertensin." Page and his collaborators named it "angiotonin." The tendency now is to accept the former terminology. The reaction which takes place can be outlined as shown on the following page.

Hypertensinogen, a pseudoglobulin, has been demonstrated only in the blood plasma, serum, and lymph. It is probably formed in the liver for it has been shown that destruction of the liver by chloroform and also hepatectomy causes the hypertensinogen to decrease in amount and even to disappear from the blood.

Page and Helmer observed that when renin is incubated with plasma or serum, hypertensin is formed but that continued incubation results in its destruction. Further investigation showed that the inactivating effect of the renin could be eliminated while the capacity of the renin

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From the Journal Club Conferences, New York University-Bellevue Medical Center Post-Graduate Medical School, New York, N. Y.

to produce the pressor substance remained unaffected. Munoz postulated the existence of another enzyme associated with impure renin to which was given the name "hypertensinase." Page conceded the existence of such an enzyme and named it "angiotonase." The kidney is probably the main source of the hypertensinase in normal blood plasma since it is completely lacking in the blood of bilaterally nephrectomized animals.

Experiments on the origin of renin carried out *in vitro* have indicated that it originates in the cortex of the kidney and especially in the lining epithelium of the convoluted tubules. Page found that by infusing angiotonin (hypertensin) into animals or men, a hypertension very similar to experimental renal and human essential hypertension was produced.

Semipurified hog renin has proved highly effective in the treatment of experimental renal hypertension in dogs, most probably through the formation of antirenin. This, however, is not available for trial in essential hypertension since antirenin to hog renin (which neutralizes hog and dog renin) unfortunately does not neutralize human renin. If future research shows that an appreciable number of hypertensives have their hypertension on a renin basis, further work should be done in the hope of producing an antirenin to human renin.

There are numerous arguments against the renal origin of hypertension and the significance of the renin-hypertensin pressor system:

1. Very frequently elevated blood pressure is found long before there is any recognizable sign of renal excretory insufficiency.

2. In a fairly large number of cases there is no sign of renal excretory insufficiency throughout the entire course of the hypertension.

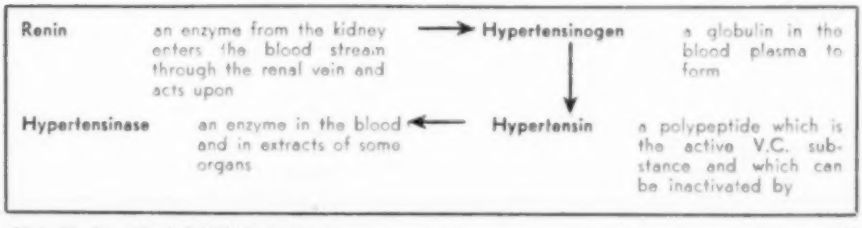
3. Usually there is no significant intrarenal vascular disease observed at post mortem in an occasional case of hypertension.

4. Neither renin nor hypertensin have been satisfactorily demonstrated in increased amounts in the peripheral arterial blood of hypertensives. The methods of determination, however, may not be sufficiently sensitive.

5. Arterial pressure in hypertensive rabbits can be brought to normal by destruction of the spinal cord. Such animals show no parallel depression in the response to injected renin.

6. Removal of the kidneys in hypertensive dogs does not necessarily reduce the blood pressure to normal.

Arthur Grollman has presented a most convincing argument against the existance of a pressor agent derived from the kidney with his experiments on the effects of nephrectomy on blood pressure. It had been impossible to ablate both kidneys without introducing the fatal effects of interfering with their excretory function. Recently, the artificial kidney and peritoneal lavage have been used to keep nephrectomized dogs alive in a relatively normal state of health for from 30 to 70 days. He has shown that when both kidneys are removed from dogs hypertension



ensues. When renal excretory function is excluded by ligation of the ureters (the kidneys being allowed to remain in the body) no elevation in the blood pressure results. This would suggest that the presence of renal tissue in the body is necessary for the maintenance of normal blood pressure and its absence results in the development of hypertension. If this is true the idea that hypertension is due to a renal pressor substance is not tenable. Peritoneal lavage is not responsible for removing the pressor agent because the same method is used with bilateral ureteral ligation and hypertension does not ensue.

This then presents a second view concerning the renal humoral mechanism. The first one maintains that a kidney which is the seat of any pathological condition bringing about a disturbance of the circulation similar to that produced by the Goldblatt clamp may be the source of a substance which raises blood pressure. The second one holds that the kidney is the source of a substance which prevents hypertension and that it is the absence, destruction, or neutralization of this substance which results in the elevation of blood pressure.

Hepatic: VEM-VDM System

Shorr et al. in their studies of the humoral mechanism of shock have obtained results which may prove applicable to the humoral mechanisms of renal hypertension. They discovered a renal substance which they have named "vaso-excitor material" (VEM), which was found to potentiate the vasoconstrictor effect of the topical application of adrenalin on the terminal arterioles and precapillaries of the mesoappendix of the rat.

The muscular units of the capillary bed possess a periodic activity termed "vasomotion" manifested by alternating periods of constriction and dilatation of the metarterioles and precapillary sphincters. The capillary bed is regulated by humoral principles of local or systemic origin and the muscular units vary in the sensitivity of their constrictor response to the local application of epinephrine or norepinephrine.

Three phases of vasomotion have been described:

1. Normal resting state: intermittent opening and closing of the precapillary sphincters, blood flowing first through one and then through another endothelial capillary.

2. Predominance of the constrictor phase of vasomotion: generalized precapillary sphincteric constriction — capillary ischemia—blood flow confined exclusively to preferential channels. This prevails during the hyperreactive phase of experimental shock when there is a predominance in the blood stream of VEM.

3. Hyperemic capillary bed resulting from suppression of vasomotion and accentuation of the dilator phase in the precapillary sphincters. This is observed in the hyperreactive phase of experimental shock when the hepatic vasodepressor, VDM, predominates in the blood stream.

The "vasodepressor material" with the ability to inhibit the vasoconstrictor effect of the topical application of adrenalin has been isolated from liver and skeletal muscle. VDM has been identified as ferritin.

Sustained Pressor Substance

There are other pressor substances which are being investigated. Shipley, Helmer, and Kohlstaedt have discovered a pressor principle in the blood plasma of cats dead as the result of certain undiagnosed natural causes, of DDT poisoning, or of prolonged hypertension resulting from large withdrawal of blood. The intravenous injection of plasma from such animals caused a sustained elevation of blood pressure for as long as five hours in cats, bilaterally nephrectomized two days before but not in normal cats. They named this the "Sustained Pressor Substance" (SPS) and concluded that it is produced as a result of prolonged period of hypotension with decrease in blood flow within

the kidneys.

Pressor Amines Bing and his collaborators have shown that an ischemic kidney but not a normal one is able to convert dihydroxyphenylalanine (DOPA), a substance with no pressor properties, into hydroxytyramine, a powerful pressor amine, by means of decarboxylation. He concluded that deamination of amino acids in the kidney requires oxygen and is an ischemic kidney dicarboxylation without deamination of amino acids resulting in the formation of pressor amines, an accumulation of which might result in elevated blood pressure. Pressor amines are rapidly destroyed by oxidative enzymes when the circulation in normal and aerobic conditions prevail.

Pherentasin An unidentified substance named "pherentasin" by Schroeder has been isolated from the arterial blood of hypertensive patients. Its pressor effect on the blood pressure of the rat is delayed and prolonged. It has been found to a large extent in the blood of patients with the more severe form of hypertension.

Encephalin Several vasoactive agents occur in nervous tissue. Adrenaline and noradrenaline have been found in the brain. "Encephalin" is a pressor substance present in extracts of brain.

Adrenal Cortex Observations evolved from the concept of the general-adaptation-syndrome (G-A-S) directed attention to the role of the adrenal cortex in the pathogenesis of hypertensive disease. In 1936, Selye demonstrated that the organism responds in a stereotyped manner to a variety of different agents: infections, trauma, nervous strain, heat, cold, muscular fatigue, etc. Their only common feature is that they place the body under a situation of stress.

Three stages of the G-A-S have been described:

1. Alarm reaction—"call to arms" of the body's defense forces — in which the adrenal plays an important role. Adaptation has not yet been acquired.

2. Stage of resistance—adaptation at its peak.

3. Stage of exhaustion—acquired adaptation is lost again.

It was shown that stress stimulates the cortex through ACTH. The mineralocorticoids (such as desoxycorticosterone) were found to produce experimental states similar to the hypertensive and rheumatic diseases. The gluco-corticoids (such as cortisone) were potent in causing thymico-lymphatic involution and in producing the blood count changes of the alarm reaction. Derangement, therefore, of this adaptive mechanism appears to be the principal factor in the production of certain maladies which are considered to be diseases of adaptation.

The following facts are important in considering the role of the adrenal cortex in the genesis of hypertension:

1. Several types of clinical hypertension are accompanied by an increased corticoid elimination in the urine and are improved by removal of excess cortical tissue: *A*. hyperplasia of the adrenal (idiopathic or secondary to a basophil anterior lobe adenoma). *B*. certain adreno-cortical tumors.

2. Excessive administration of desoxycorticosterone will produce a marked hypertension in experimental animals and man.

3. Adrenalectomy causes a decrease in the normal blood pressure and abolishes most types of experimental hypertension. Administration of mineralo-corticoids after adrenalectomy restores the blood pressure to previous levels.

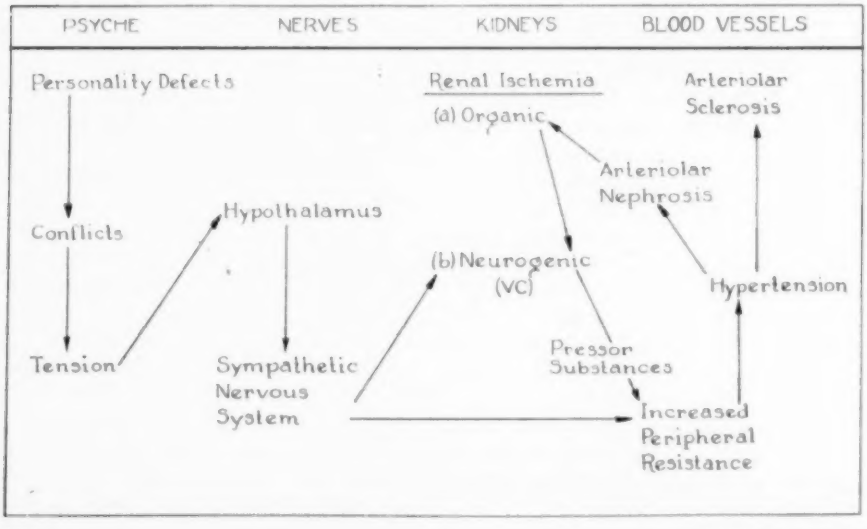
In the defense mechanism the adrenal medulla is induced to discharge adrenaline and noradrenaline and the sympathetic nerves act through the liberation of adrenergic substances at their endings. This produces vasoconstriction with an increase in peripheral resistance and blood pressure. Selye suggests that this response also involves an opening of the "renal shunt," which deviates blood from the cortical glomeruli to the juxtamedullary

region of the kidney, thereby increasing production of renal pressor substance.

The hormonal defense mechanism involves an increase in the gluco-corticoid production. Some data suggest that under conditions of stress mineralo-corticoid production is likewise increased. The latter produces severe lesions in the kidney if large quantities are given over a long period. It is probable that they increase renal pressor production especially through their effect upon the convoluted tubules. Prolonged overdosages with the mineralo-corticoids result in arteriosclerotic changes with an increase in peripheral resistance and blood pressure.

The pressor and nephrotoxic effects of the mineralo-corticoids are related to metabolic "conditioning" factors. Relatively small doses will elevate blood pressure if given with a solution of sodium chloride which by itself causes no abnormal symptoms. Selye and Hall in 1943 showed that in the rat chronic overdosage with DCS causes malignant nephrosclerosis with a rapidly progressing hypertension. DCS decreases the renal excretion of Na, Cl, and H_2O and increases the renal excretion of K. There is an increase in plasma volume and extracellular fluid with the administration of DCS. In 1949, Selye showed that in the absence of salt the administration of DCS is not followed by renal changes. Apparently sodium chloride sensitizes the animals to the action of DCS or else the steroid sensitizes the organism to the action of sodium. Evidence for the latter has been presented by the administration of large dose of NaCl alone with the production of renal lesions and arterial hypertension. Administration of DCS with subthreshold doses of NaCl causes the same effect as NaCl alone.

The renal lesion is probably important in the production of hypertension by DCS. It has been found that a parallel exists between alterations in blood pressure and an increase in the kidney weight. The fact that blood pressure usually returns to normal levels on interruption of treatment with DCS is explained by the fact that renal lesions caused by the steroid can regress after its withdrawal or be compensated by hypertrophy of the nondamaged renal tissue. Experimental renal hypertension and the injection of renin results in hypertrophy of the adrenal zona glomerulosa, the source of desoxycorti-



coids. However, dogs respond equally well after kidneys are removed. There is also an important relationship between the adrenal cortex and renal VEM mechanism. In the absence of the adrenal cortex, the kidney loses its capacity to form VEM; this function is maintained by DCA or adrenal cortical extract.

The relation of adrenal cortical function to essential hypertension is obscure. Although some patients respond to severe sodium restriction by a decrease of arterial pressure, hypertensives as a group do not show substantial evidence of increased production of corticoids. The adrenal cortex may play a role as a sustaining mechanism in the maintenance of hypertension.

Many conflicting opinions as to the etiology of essential hypertension have been presented in this paper. Schroeder has attempted to integrate in outline form the many known mechanisms which have been found to affect blood pressure.

Summary

The reader can perhaps use this as a working hypothesis, realizing that the cause of hypertension is not known. Any complete concept of hypertension will involve an integration of all the vasotrophic factors which can be shown to be deranged in the hypertensive syndrome. Only by advances in our knowledge of the pathogenesis of human hypertension may we some day prevent and cure this condition which takes such a large toll of human lives.

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New Knowledge of Life-Giving Light

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"Scientists and laymen alike are beginning to come to a conscious realization of the fact that radiant energy is one of the most important things, if not the most important, in the world."

"We prophesy that the great discoveries of the future in biology and medicine will be in the field of **radiant energy** and its use in healing the sick, and keeping the healthy in health."

Charles Sheard, Ph.D., (1930)

"Light, when scientifically applied will do infinitely more than any other agent in the service of man to restore normal physiological conditions."

Howard Humphris, M.D. (1926)

The above prophecies were made over 20 years ago by two authorities in the field of therapeutic radiology and yet it is surprising that our medical schools, research staffs, and other workers in biophysics and medicine have not carried out more intensive clinical and experimental studies on the *therapeutic value of light within the solar range*. However, if we briefly review the past 25 years of radiation therapy in America, it is not difficult to understand why this most promising of all therapeutic agents has either been ignored or fallen into disuse. For certainly neither of the above prophecies has been fulfilled through the past emphasis on ultraviolet therapy, infrared, diathermy, and other regional applications of electromagnetic energy. In fact, the negligible clinical value of the various artificial sources of radiant energy so far employed, either alone or in combination, has not even approached, in much more than their psychic effect, the recorded accomplishments of natural heliotherapy. This is confirmed in every textbook on Light Therapy or Physical Medicine.

The reason for this failure is incredibly simple. For with the universally acknowledged superiority of solar radiation, it is surprising to find that all of the radiation modalities so far employed in Physical Medicine, emit only *regional* energy which is found only at or beyond the extreme limits of the solar spectrum. This is true of the short-wave erythemogenic (sunburning) ultraviolet, the long-wave non-penetrating infra-red, (the non-glowing "infra-red generator"), and even far beyond the solar limits, in the current use of diathermy. A critical opinion of this latter "modality" has been furnished by an eminent orthopedic specialist, in which diathermy is described as the most suggestive, the most expensive, the most dangerous and the least effective form of heat known to man. It may cause consternation in some quarters that the recent work of Prof. H. M. Hines[1] and his colleagues confirms this by laboratory proof, in show-

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ing not only the dangers of diathermy, but the significant fact that an ordinary "infrared heater" produces as high, and higher deep tissue temperatures to a depth of 3 centimetres, as that produced by diathermy of all wavelengths. His work also shows that no significant increase in blood flow occurs unless higher dosages than those permissible in therapy are given.

The Artificial Eclipse of the Sun Quite understandably, it was the scant clinical effectiveness of these measures that led American clinicians and research workers to overlook the consistently brillian record of over 60 years at the Finsen Light Institute in Copenhagen, or those of the famous Rollier and Bernhard "sun clinics" in the Swiss Alps. But more importantly, it has obscured and delayed *the possibility of the improvement* of their achievements by the use of *intensified* and rational artificial radiation known to *typify the therapeutic action* of solar radiation.

For it is readily demonstrable that of the whole gamut of the electro-magnetic spectrum, from alternating current to cosmic radiation, the only range of wavelengths that is not destructive to both plant and animal organisms, or which is life sustaining and "regenerative," lies in the spectral range from about 3105A to 14,000A. This comprises just the long-wave ultraviolet, the visible and short-wave infrared, which may be made artificially available by several relatively simple methods. This is the only range of spectral energy that is not "suspect," but more significantly, as formulated by Prof. Henry Laurens (Physiological Effects of Radiant Energy) in summarizing the results of heliotherapy, it is only this energy which typifies the *therapeutic* action of the sun. Such radiant energy may be amplified to any desired degree and it is a logical premise that more profound results than those of average sunlight, both in point of time and scope, may be produced by such amplification of the *therapeutic "essence" of the sun.*

But progress is being made and there is now enough authoritative evidence to suggest that *effective radiant energy* may soon share the clinical spotlight now focused on the antibiotics and other chemotherapeutic agencies. For clinical results as varied and often as "spectacular," have been produced by this amplified "therapeutic essence" of the sun, in thousands of cases by eminent specialists without vestige of "side-ractions" which are often attendant in many chemotherapeutic procedures.

Some "Dramatic" Effects Of Intrasolar Energy Within the last few years a series of researches has shown the spectacular ability of a narrow band of "visible light" to revive "dead" bacteria and other organisms, that had been "killed" or so severely injured by short-wave ultraviolet radiation that the organisms could not be re-incubated. (2)

It is worthy of note that the *lethal* ultraviolet radiation which was employed to kill the organisms is emitted by all "professional" and even by some "home model sun lamps," yet such radiation has been shown by McDonald to be "more lethal to cells than high-voltage x-rays."[3] And as early as 1928 Dixon[4] et al. had shown that these same "healthful" ultraviolet rays may awaken a quiescent tuberculosis, cause active kidney disease and produce inflammation of the heart and cancer of the skin. That this latter action is a possibility is attested to by the work of Dr. H. F. Blum,[5] of the Public Health Institute, which showed that 1600 cancers were introduced in 1600 mice *only* when the animals had received *"sunburning"* wavelengths of ultraviolet, and not the regenerative energy of the spectrum above it.

In commenting further on the amazing *ability of light to repair various kinds of damage*, Kelner has shown that by exposing the injured cells to bright artificial light, their survival rate was increased as

much as 300,000 times, and concludes that there is some common factor in all the effects which can be influenced by visible light. The author takes exception to Dr. Kelner's statement that it seemed incredible that no one has ever before observed the effect of visible light. For, as early as 1928, Dr. Carl Sonne[6] of the Finsen Light Institute called attention to the fact that "visible light" of high intensity would heat the blood stream to a higher degree than that of the highest endurable fever, yet without any determinable increase in general body temperature. He further showed that this radiation caused the absorption of injected toxic serum in rabbits, many thousands of times more rapidly than the normal absorption of the same serum in the un-irradiated control animals. He concluded that "visible light" produced a physiological response which *differed from that of "any other form of heat."*

This fact is of great physiological significance, as it points to one reason for the superiority of solar radiation, *whose action cannot be evaluated in terms of "heat"* alone.

The longer ultraviolet energy, accompanied by the extremely intense visible light, account for the dual action of the sun in producing combined photo-*chemical* and photo-*thermal* effects which are not readily separable. It also explains why "radiant *(luminous)* heat" will exceed the clinical performance of non-glowing or low temperature infrared generators or diathermy—a point often stressed by Kovacs, Titus and other physiatrists. Sir Leonard Hill has critically referred to the fact that the medical profession has been offered 100 different forms of heat. The concept of the necessity of an *intense* visible component in a therapeutic light source should effect a long overdue realization that the effects of "heat," or "light," in its clinical application, depend on its character and resultant spectral absorption.

Quite understandably, an uninformed clinician may state that he uses "heat" and sees no reason for a change, or he may imply that because the mercury vapor "light" had failed in its claimed accomplishment, any other "light" may be included in the same category. Such a situation suggests the need for the closer cooperation of physicist and physician—or more objectively, the Physical Medicine needs a thorough physical examination. Other investigators such as Mayer,[7] Rollier,[8] Bernhard,[9] and others had called attention to the importance of visible light as one of the three major components of solar radiation, and concur that it accounts for much of its therapeutic action. Since all available evidence suggested the importance of this specific mid-spectral range of the sun (3150A to 14,000A) it seemed logical as an experimental procedure to intensify just this regenerative energy artificially, and to evaluate such amplified solar energy clinically. However, with the profession thinking only in terms of erythemogenic "ultraviolet," it was realized that there was little hope of interesting the orthodox physical therapists in any research program which practically reversed their adopted concepts and theories of radiation therapy.

Clinical Effectiveness of Spectral Energy From 3150 to 14,000A

Accordingly, the cooperation of a group of eminent specialists in ophthalmology, oral pathology, otolaryngology and other divisions of medicine was enlisted to evaluate first, an experimental source of this radiant energy which delivered only a *localized* beam of this "therapeutic essence" or solar energy. It should be realized that all of the previous studies in radiation therapy presumed the necessity of irradiating at least a major portion of the body to produce any physiologic response or therapeutic result. It was surprising, therefore, in the first experimental series to find a "marked effect" from a three-minute exposure of only little more

than one-half circular inch of the test field or lesion. A series of essentially controlled experiments in a variety of oral pathology indicated a marked recovery in a series of sub-acute and chronic cases of Vincent's infection, apical abscesses, periodontitis (pyorrhea) and the extremely rapid healing of infected lesions without any adjuvant treatment. A surprising analgesic effect was also reported, as a "practical specific," in the ability of this localized beam to control post-operative pain. Even the "dry socket" condition, which is one of the most painful conditions encountered in oral practice, was completely relieved by a few minutes irradiation.

Since this early evaluation, after the treatment of over 10,000 patients by the three original investigators,[10] their report refers to their continued daily use of the radiation "in a variety of inflammatory, traumatic, post-operative and infected conditions." And as suggestive of its current value the authors conclude that "before and after the introduction of the antibiotics and other chemotherapeutic measures, the method has proved to be singularly irreplaceable."

Suggested Neural Evaluation

Two of the early investigators[10a] have reported the successful treatment of 64 cases of chronic tic douloureux. In 9 of the patients followed for over 8 years, none has shown a recurrence of this rather intractable malady. Facial paralysis has responded with "surprising rapidity" which also suggests the ability of this form and intensity of radiation to "repair various kinds of damage" as Kelner has shown. Certainly, a broader study on neural regeneration is indicated.

After 5 years investigation, a report[11] on 220 cases of chronic progressive catarrhal deafness was concluded which showed that an average increase of 16 inches in hearing distance was secured and maintained. And in this condition it is interesting to observe the marked "stimulation" produced by the radiation, for if a recession after the original gain has occurred, an average of two 3-minute irradiations will restore the original condition. It is now established that an average period of 9 months elapses without recession, which, rather significantly, is the same period of time noted in the treatment of periodontal degeneration. Many "dramatic" results are observed in the treatment of an extensive series of chronic otitis media. A number of cases of long standing, with drainage for an average period of 20 years (one 35 years) have completely cleared in one or two 3-minute irradiations and with no reinvolvement. Since similar cases of this and other conditions are now reported in the treatment of small animals, the resultant recovery is rather definitely removed from the psychosomatic category.

The first experiments in ocular conditions were conducted on animals at the Wilmer Institute of Ophthalmology[12] to determine if any injury of this most "light sensitive" structure was produced by this form of radiant energy. Since none was found, an ophthalmological study was carried on for 7 years.[13] The treatment of over 1100 cases of varied pathology, essentially controlled where bilateral involvement was present, showed the method to be of "marked value" in disciform keratitis, tubercular keratitis, corneal ulcer, serpigenous ulcer, congenital and traumatic opacities and macular degeneration of the cornea. A variety of conjunctival inflammations, blepharitis and lachrymal sac infections often respond without adjuvant medication or antibiotics. Here again similar conditions are now reported in animal therapy[14] which present a rigid control not always attainable in human therapy.

For the current study, Kelner's reference to the dramatic "reversal of radiation damage" with light, is of particular significance in connection with radiation injuries caused (and possibly to be en-

countered on a vast scale) by Gamma, X, or neutron radiation. As is well known, there are now appearing among nuclear research workers "deep lenticular opacities" with consequent and progressive loss of vision. It would appear that the material cited should occasion interest and immediate evaluation of the radiation therapy of this admittedly intractable condition.

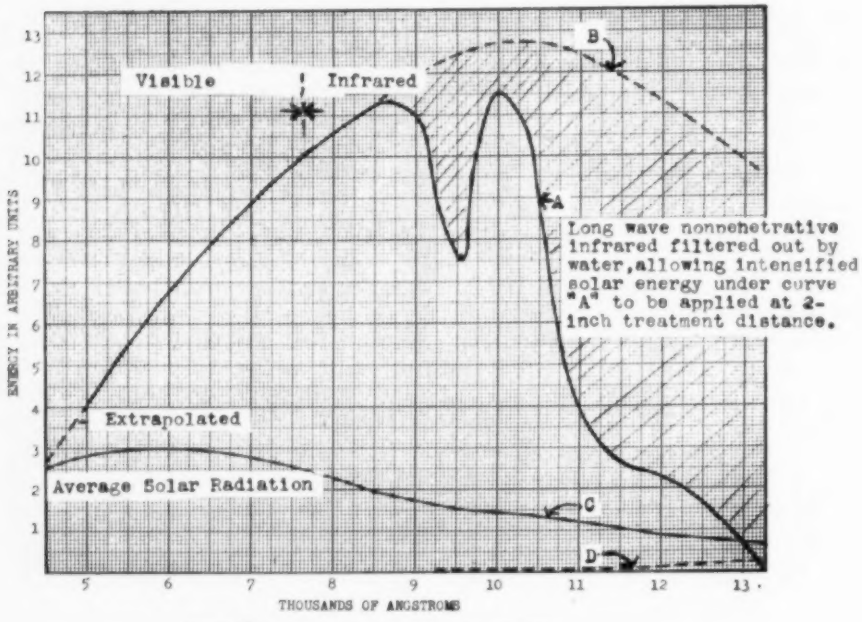

FIGURE I RADIATION FROM SUPERHEATED TUNGSTEN.

Curve A **Superheated Tungsten** with 1" water cell, at 2 inches.
Curve B. Same lamp without water cell.
Curve C. Relative intensity of sunlight.
Curve D. Relative intensity of a nonluminous source of infrared radiation which gives the same heating sensation as that of Curve A.

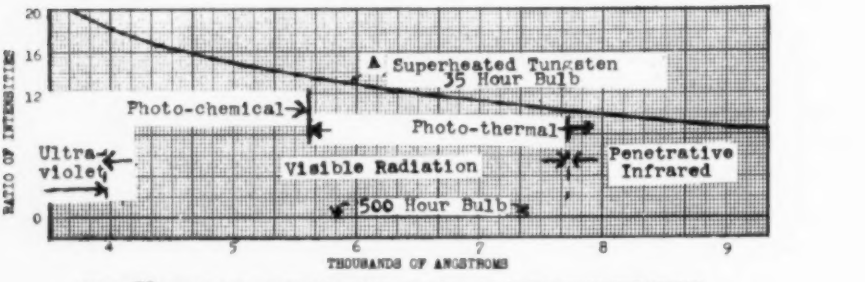

FIGURE II SHOWING THE MARKED INCREASE IN INTENSITY OF THE THREE THERAPEUTIC DIVISIONS OF THE SPECTRUM PRODUCED BY SUPERHEATING TUNGSTEN.

1. Penetrative infrared increased approximately 9 times.
2. Visible radiation increased approximately 14 times.
3. Ultraviolet radiation increased approximately 21 times.

Fig.1, Prof. C. Hawley Cartwright, M.I.T.
Fig.2, Prof. George R. Harrison, M.I.T.

Application to Larger Areas When the marked value of this intensified, non-erythemogenic radiation, in strictly localized or orificial applications, had been demonstrated, the study of its effects on more extensive areas of the body was begun. A variety of conditions such as arthritic complexes, upper respiratory infection involving the sinuses, various types of bursitis, extensive granulating wounds and ulcers were treated by a group of eminent Boston specialists[15] over a period of 5 years, and a more rapid response in these conditions was reported than with other conventional measures. A recent paper of one of this group[16] covers 8 years observation of this form of radiation therapy in a variety of orthopedic indications.

The fact has been emphasized that solar radiation, or this artificially intensified counterpart, cannot be evaluated in terms of "heat" alone. To substantiate this, certain chronic dermatoses in which conventional forms of "heat" are known to be contra-indicated, were treated with filtered radiation (containing no long-wave infrared). Rapid and often "spectacular" clearing of these conditions is now uniformly reported. Animal therapy has also confirmed this dermatological value, which again precludes the operation of psychic factors that seem to influence certain dermatoses and other conditions in man.

Suggested Studies An extensive series of observations by capable investigators has shown this new concept radiation therapy to be of marked value in the treatment of a variety of conditions routinely encountered in private and clinic practice. To the uninformed, or to one thinking in terms of the "specificity" or limited action of many therapeutic measures, the diversity of response to this energy may seem unduly broad but the results are consistent with the Sheared and Humphris prophecies cited above, the ability of radiation to reverse various kinds of damage or disturbed physiology which is already a fait accompli.

After a long period of observation in experimental and clinical research with radiant energy, the authors hope that this survey may crystallize available knowledge and thereby chart a course of further investigation of the biological effects of intensified, non-erythemogenic radiation within the solar range.

This thesis has now received the endorsement of many capable bio-physicists and other observers, and the rewards of further application and study would seem to be great when judged from either physical, physiological or clinical viewpoints. For instance, abundant evidence is available which indicates that within the spectral range specified, lies the most effective use of radiation in tuberculous involvement. Lomholt,[17] Strandberg,[18] Rollier and others have clearly delineated the value of the *longer* ultraviolet wavelengths as "the essential source." Experimentally localized irradiation has shown a rapidly effective action in tubercular keratitis and especially in the treatment of tubercular cervical adenitis. Evidence of the value of localized irradiation of accessible hypertrophied glands in man and animal has demonstrated a "rapid reduction and normalization of function." The irradiation therapy of the hypertrophied prostate, has, in a suggestive series of experimental cases produced a rapid and "dramatic" reduction in size and symptoms. This objective finding is subject to definite and controlled evaluation and should be of interest in the conservative therapy of a rather common and often intractible pathology in man.

Whatever has been observed so far with this type of radiant energy, has followed only its relatively small application to a 6 inch circular, or smaller area of the body. Since the action of the *absorbed energy* must be in large measure due to its influence on the blood stream, both *photo-chemically* and *photo-thermally*, and especially in the capillary system, the

irradiation of a much larger area of the body would appear to be worthy of further study. The past methods of "heating" the entire body (artificial fever therapy) have shown some value as an adjuvant or "accelerator" to chemotherapeutic or antibiotic administration, although the debilitation (and dangers) of the present methods of temperature elevation have doubtless restricted their general employment. Consideration of the intensified radiant energy described, may suggest that its general application would not only be non-enervating and devoid of danger, but extremely accelerative to the photochemical and photothermal action sought for in the blood stream of the patient.

Methods of Producing the Desired Radiation Radiation for 315A to 14,000A, in the required intensity, may be produced by two simple methods. A modern high intensity carbon arc lamp ("Finsen" type carbons), properly filtered, may be used as a source. Or by superheating a tungsten filament lamp to about 3300K, a perfectly continuous spectrum of three therapeutic components of sunlight is produced, as indicated in Fig. 2. It is seen that the ultraviolet emission is increased 22 times, the visible 12 times, and the near infrared 9 times that of a bulb of identical wattage operating at a lower temperature. Filtering out the long wave, non-penetrating infrared radiation is accomplished by a filter-cell using either water or glycerin of proper depth.

It has been determined experimentally that a total intensity of about 3½ times that of solar radiation is optimum for general application (Fig. 1). The artificial source of super-heated tungsten, properly filtered, delivers to the treatment area approximately 3.6 gram calories per square centimetre per minute. Sunlight averages over a comparable wavelength range slightly less than 1. gram calory per square centimetre per minute. The clinical evaluations referred to in the above studies employed filtered, super-heated tungsten radiation.

Summary

The rationale of the use of radiant energy within the solar range is reaffirmed.

The major therapeutic effects of solar radiation, both photo-chemically and photo-thermally, are shown to be due to its *long*-wave (nonerythemogenic) ultraviolet and accompanying visible and short-wave (penetrative infrared, embracing the spectral range from *3150 A. to 14,000 A., only when applied as a clinical entity.)* Significantly, this range of radiant energy is the only portion of the entire electro-magnetic spectrum that is life sustaining and that is not destructive to plant and animal tissue in high intensity.

Conversely, short-wave (erythemogenic) ultraviolet (3150 and shorter) is shown to lack any major therapeutic action and to be demonstrably destructive to cellular tissue and not devoid of danger in human application. An intense "visible" component is shown to be of extreme importance in a therapeutic light source as its action is different from, and clinically superior to, any other form of "heat".

By amplifying just the "therapeutic essence" of solar radiation to a total intensity of 3½ times that of the sun, an extensive clinical evaluation suggests a major advance in radiation therapy, when judged from physical, physiological or clinical viewpoints.

It is believed that the evaluation of intensified non-erythemogenic radiation may suggest a broader use and study of this form of energy, which may then confirm the postulate that radiation therapy will prove to be the most singularly effective therapeutic element in the medical armamentarium.

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Clini-Clipping

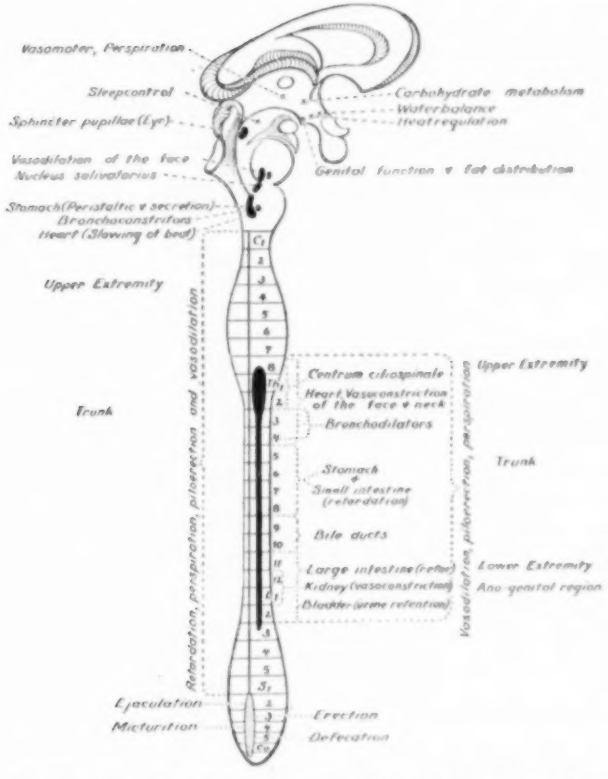


Diagram showing the origin of the sympathetic and parasympathetic nerves. These nerves may be controlled by the emotions. Peptic ulcer, angina pectoris, essential hypertension, ulcerative colitis, neurodermatitis, some allergic type diseases (some cases of asthma, migraine) and many others are examples of diseases which are thought to have a component of "nervous" origin.

Clinico-Pathological Conference

New York University-Bellevue Medical Center Post Graduate Medical School, Department Of Medicine at Bellevue Hospital, Fourth Medical (N. Y. U.) Division

PATIENT R. B.

First B. H. admission (11/1/52) of R.B., an unemployed seaman, 32 years old, because of (1) nausea, vomiting, anorexia of 3-4 months' duration and (2) abdominal epigastric pain of 2-3 weeks' duration and (3) jaundice of 1 (?) days' duration. History of alcoholism of 12 years' duration with poor dietary intake during drinking bouts and negligible dietary intake in the past 6 months. Shortly P.T.A., pt. noted gradual enlargement of the abdomen. No hematemesis, questionably reliable history of one episode of tarry stools. Stools were reported to be light brown, urine dark brown. Otherwise system review negative.

Physical Examination T. 101.6 PR 100 R. 28 BP 150/110.

Patient oriented, acutely ill, uncooperative—icteric, distressed constantly by abdominal pain. Skin normal hair distribution. One spider angioma on right shoulder. Moderately severe icteric discoloration. No hemorrhage.

Head: EENT neg. except coated moist tongue showing some marginal papillary atrophy.

Chest: symmetrical; elevation of diaphragm.

Lungs: clear to P&A.

Heart: RST. Sounds of good quality. No murmurs, thrills, rubs or gallop.

Abdomen: markedly distended. Prominent subcutaneous veins. No fluid wave demonstrable although there is some dullness in the flanks—no shifting dullness. Exquisite tenderness and abdominal rigidity and rebound tenderness in epigastrium. Liver 4 f.b. below RCM, non tender; firm, not grossly nodular. Spleen enlarged to percussion 3 f.b. but not palpated.

Extremities: neg. for edema, varices.

Neurological: physiological.

Course in Hospital Patient was placed on therapy consisting of hi-protein, hi-carbohydrate, hi-vitamin diet. Salt was not restricted. This diet had to be supplemented by daily I.V. 10% glucose infusions because of marked anorexia. Low grade temperature has persisted. Liver increased gradually in size. On 11/11, steatorrheic stools were noted (No chemical confirmation obtained.) and diarrhea was reported. Stools were not acholic.

Patient continued complaining of pain in epigastrium, colicky in character radiating to the left upper quadrant and relieved by Demerol in high doses only. On 11/20 the pain became more intense, diarrhea persisted and there was a rise in WBC's to 20,000 with shift to the left following which surgical consult was obtained for purpose of exploration. Surgical intervention was rejected. 11/24 edema of the lower extremities and ascites developed—jaundice obviously increased.

Paracentesis revealed 900 cc. of ascitic fluid. 12/8 sensorium became cloudy. Ecchymoses developed throughout extremities in spite of vitamin K administration. Levin tube feeding consisting of low fat diet in liquid, concentrated form was started. NPN rose to 100. Creatinine 5.0 mgm.%. Also ACTH (only 120 mgm.) and I.V. aureomycin was added to therapy. Blood noted in diarrheic stools. Vomiting occurred. Laboratory showed marked hypopotassemia and some hyponatremia. Clinically patient had an episode of generalized edema including face, SCB with wheezing throughout the chest, marked abdominal distention with increasing oliguria. BP 160/50. RX. consisting of hypertonic saline (500 cc. of 5% NaCl) and K led to a marked diuresis with marked clinical improvement. Therapy at this point was directed to restoration of electrolyte balance.

Laboratory Data

EKG normal

Urinalysis

Date	Color	S.G.	pH	Alb	
11/3/52	amber	1.016	Alk		Innumerable bact., otherwise neg.
12/12/52	catheter	1.006			Numerous RBC; bile-stained epith. cells.
12/22/52	cloudy	1.011	Alk	2+	Occasion WBC; dirt bact.

Urobilinogen: fluctuating from 1-40 (normal)—1—160—1-80.
Bile: constantly 4+

Liver Chemistry

Date	A/G	Chol/Est.	I.I.	CFT	Prothrombin	Sed. Rate	Alk. P. Tse
11/5/52	3.8/2.3	485	119	0	23 sec. 20%	19	12.8
11/12/52		270/52	186	1+	"	31	7.5
11/17/52	3.3/3.2	228	122	4+		41	9.2
11/21/52	3.4/3.9	102/65	186	4+	36%		8.3
12/1/52	2.8/3.3	108/12	182	3+	12 sec. 50%		8.1
12/15/52	2.6/3.2	159/13	210	3+		53	9.8
12/22/52	3.2/1.8		132	3+			16.9

Renal Chemistry-Electrolyte

Date	NPN	BUN	Creatinine	K	Na	CO_2	
11/17	32						. Amylase normal on 2 occasions.
12/8	100		5				
12/10				1.9 mEq.	138 mEq.	11 mEq.	Glucose tolerance test normal.
12/11				2.0	134		
12/12		100+		2.2	144	15 mEq.	Pleural & Ascitic fluid transudates
12/15			2.6	2.2	134	24 mEq.	
12/17		70	4.5	3.5 mEq.	137		Sp. Gr. 1014.
12/22				3.4	140	12 mEq.	Stool guaiac 4+ on all occasions.
12/24				3.2	139	20 mEq.	

Blood

Date	Hgb.	RBC.	WBC	TR	P	L	M	E	Hct.	Hem.
11/1/52	16.	5.1	8800						52%	54
11/13/52	15	4.47	15750	8	67	21	3	1		46
11/19/52	13.5	4.28	20000	20	63	12	4	1		46
12/11/52	12.5	4.01	35750	9	83	16	2			38

Case presented from the wards of the Fourth Medical Division, Bellevue Hospital, Dr. Charles Wilkinson, Dir.

Write your own clinical impression or formulation here, if you wish.

Pathological Findings

Necropsy was performed 5 days postmortem, so that a severe degree of autolysis obscured the character of the lesions. Fortunately aspiration biopsies of liver and kidney were performed while the patient was in extremis. Together, these tissues established the diagnoses as *chronic hepatitis with fibrosis* and bile nephrosis. The liver was greatly enlarged (weighing 2600 grams, flabby and intensely jaundiced. Microscopically, in addition to marked bile stasis and condensation of stroma, a mild but definite increase of fibrous tissue was present within the lobules as well as in portal areas. This was accompanied by some proliferation of bile ducts and infiltration of polymorphonuclear leukocytes. The changes suggest Hanot's cirrhosis of the sort following infectious hepatitis(1). The lesion resembles that presented to this conference (Acc. No. 38621) two years ago. There are 3 features, however, that cast doubt on this etiology:

1. Considerable quantities of fat were present in the parenchyma.

2. When the liver was placed on ice, a fine frost of crystals appeared on its surface. Chemical analysis of these crystals was not made. If we assume them to be amino acid, their presence would favor a toxic etiology.

3. Azotemia is not ordinarily a concomitant of infectious hepatitis.

The renal lesion was a severe one as bile *nephrosis* goes. It was associated with formation of multiple casts, variable degenerative changes of the tubules and thrombosis of small renal vein. Since bile nephrosis rarely causes renal insufficiency per se (2), some toxic substance of hepatic origin other than bile may also be involved.

Extensive peripancreatic fat necrosis was an incidental finding—a fairly common one in hepatic disease (3). This may have caused some of the abdominal pain. Some petechial hemorrhages were present in the intestinal mucosa. There was a marked degree of congestive splenomegaly (weight —600 grams).

Acute fibrinous pericarditis also was present. This cannot be regarded as necessarily being of uremic origin since lobular pneumonia with pleurisy also were present. Gram positive cocci were seen in the pleural exudate.

References

1. W. H. Sheldon & D. F. James, Cirrhosis Following Infectious Hepatitis, Arch. Int. Med. 81, 666, 1948.
2. L. L. Thompson, Jr., W. D. Frazier and I. S. Raydin, The Renal Lesion in Obstructive Jaundice, Am. J. Med. Sc. 199, 305,1940.
3. A. D. Pollack, and I. E. Gerber, Abdominal Visceral Lesions Associated with Primary Diseases of the Liver, Arch. Path. 36, 608, 1943.

PATIENT C.H.

This was the 30th plus admission of C. H. He was a 35 year old, single white male of Bowery address who was admitted on 10/6/52, complaining of chills, fever, weakness and chest pain of two weeks duration.

Previous Admission had been for proven active tuberculosis (many times), grand mal convulsions brought on by alcoholism, alcoholic stupor, malingering, psychopathic personality, influenza and pneumonia. He usually signed out on each admission A.O.R. after prolonged nocturnal attention by house staff but before work-up could be completed. His epilepsy dated from age 10, at which time he injured his head in a fall from a tree. Spinal taps, neurological exam, and E.E.G. were negative. He had also been admitted many times to most other hospitals in lower Manhattan.

His last previous admission to BVH

was (7/19/52 to 7/21/52) for alcoholic intoxication and convulsive seizures at which time PX., urine and blood counts were within normal limits. He was discharged on his usual medication of dilantin. 0.1 gm b.i.d. & phenobarbital 0.03 b.i.d.

Present Illness Two weeks P.T.A., the patient developed a "cold," a day later fever and shaking chills associated with sort throat, malaise, weakness and palpitation. He also had "heart pain" described as dull aching, continuously present, not related to exertion and occasionally accentuated by coughing or cold drinks as sharp pain. He also had marked myalgias, nausea, vomiting, anorexia and constipation. He entered Columbus Hospital 2 weeks P.T.A. where "virus pneumonia" was diagnosed and blood transfusion, penicillin and streptomycin were administered. The only improvement was disappearance of myalgias. He continued to spike fever and grew progressively weaker. He signed out and was admitted to Bellevue where he felt more at home.

Admission Px T 103 P 120 R 24 BP 110/65.

The patient was in obvious distress, acutely ill, short of breath, weak, sweating and coughing profusely. Skin was pale. No remarkable nodes. There was voluntary limitation of chest expansion with decreased tactile fremitus at right base, decreased BS at left base, dry rales at both posterior bases and rt. mid. lung anterior, inspiratory and expiratory wheezes rt. middle lobe and ronchi over rt. lung field. Heart was unremarkable. Abdomen had generalized tenderness. Spleen tip was palpable. Chest fluoroscopy revealed bilateral pleural thickening and some infiltrates suggesting old as well as recent TB activity.

Hospital Course His initial laboratory studies revealed Hb. 5 gms, rbc 1.44, wbc 2150. Blood smear showed 59% atypical lymphocytes with 4% blast forms, ESR 81 mm hr., hematocrit 15. It was believed that the patient represented either active tuberculosis with leukemoid reaction, miliary TB, aleukemic leukemia or aplastic anemia. He had not responded to penicillin or aureomycin by the 11th day and was therefore switched to streptomycin plus PAS and penicillin even though AFB (acid fast bacilli) studies were negative. On this therapy, his temperature became normal by the 17th day and remained so until the 23rd day when he began running low grade temperature. On the 31st day, penicillin therapy was replaced by Rimifon and streptomycin and PAS were continued. Low grade fever continued.

On the 39th and 40th days, the temperature spiked to 104 and 105°. Spiking fever marked rest of hospital course. On 51st day Rimifon was cut and Aminopterin was added to the streptomycin and PAS and maintained until the patient expired on the 60th day.

His course was also marked by mild cough productive of moderate amounts of mucoid sputum which was occasionally filled with blobs of dark brown blood perhaps from tonsillar ulcer. He required repeated transfusions. A large hemorrhage was also noted in left fundus. All observers agreed that the spleen and liver enlarged during his course but no significant adenopathy developed. On 52nd hospital day, he developed evidence of pericardial effusion and friction rub. His course was gradually downhill and he expired on 60th hospital day (12/4/52).

Miscellaneous Mazzini neg. All AFB smears and cultures of blood, sputum and sternal marrow negative. Cold agglutinins, heterophile and Coombs tests neg. Febrile agglutinins neg. Spinal puncture within normal limits. Multiple blood cultures for pathogens neg.

Sternal marrow was sparsely cellular. The majority of cells were blasts with a few plasma and reticulum cells. EKG's showed non-specific T wave changes.

11/19/52 Tuberculin Test, 1st strength, negative after 48 hours.

Laboratory Data

Urine

Date	Color	Sp. G.	pH	Alb.	Sug.	Wbc	Rbc	Other
10/6/52	Amber	1.015	alk	1+	0	2.4	occ.	1 gran. cast.
11/23/52	Cloudy	1.031	ac.	20mg	1+	0	0	Amorph. sed.

Blood

Date	Hb	Rbc	Wbc	Tr	P	L	M	E	B	Smear
10/8/52	5.0	1.44	2,350	8	22	59	3	0	0	4 blasts. 2 normobl. 1 pronormbl. 1 plasma c.
10/9/52	4.5	1.30	2 350	11	44	65	5	0	0	1 stem c. 2 bl.pl. 101,000. 2 plas.
11/24/52	6.0	2.08	37,000	10	5	8	0	0	0	lymphs typical.
12/1/52 (10/8/52 Hct. 15)	5.5	2.06	81,000	9	6	3	2	0	0	Bl 72% Pl. 119,000. Plasma 1. 5. normoblasts. Bl 69%. promyelo 4. metamyel 3. stem. 1, pronorm 2, histio 2 platelets 36,000.

* Bl.=blast.

Blood Chemistries

Date	Sugar	NPN	A/G	II	CFT	Alk P'tase	Creat.	TP	Uric acid	PUN
10/10/52			4.3/3.2	3	0					
10/10/52			4.3/3.2	3	0	4.1	1.0			
11/28/52	286	30	3.7/2.5					6.2	6.2	16

Case presented from the wards of the Fourth Medical Division, Bellevue Hospital, Dr. Charles Wilkinson, Dir.

Write your own clinical impression or formulation here, if you wish.

Pathological Findings

The clinical course and the appearance of the peripheral blood smears were those of acute leukemia. Auer bodies were present within some of the blast cells, indicating that they were of myeloid origin. On the other hand, there were three anatomical features indicating that the disease in the bone marrow was of considerably greater duration.

1. Large numbers of atypical megakaryocytes infiltrated the lymph nodes as well as the marrow.

2. The leukemic cells of the marrow were quite pleomorphic and in variable stages of maturation. Eosinophiles also were numerous.

3. In areas, considerable amounts of reticulum had been laid down.

For this reason, this has been classified as *subacute myelogenous leukemia.*

The marrow everywhere, including the sternum, was highly cellular. The clinical interpretation of the aspirated marrow as sparsely cellular would appear not to be confirmed. We suspect that the fibrosis of the marrow interfered with aspiration of marrow substance and that there was considerable contamination with peripheral blood.

To what extent the treatment with Aminopterin altered the number and appearance of the leukemic cells cannot be estimated.

Aplastic lobular pneumonia was present

—a common finding in acute leukemia. This was complicated by acute fibrinous pericarditis. Pericarditis, secondary to leukemic infiltration of the epicardium, is frequent complication of leukemias (1, 2). We have observed several instances of infectious pericarditis, similar to the present one, resulting from the agranulocytosis of acute leukemia as well.

Except in one minute focus, *fibrocaseous tuberculosis* had become arrested. We are unable to explain the negative cutaneous tuberculin test. A second strength test might have proved positive. There was no hematogenous dissemination of tuberculosis.

References

1. H. R. Bierman, E. K. Perkins & P. Ortega, Pericarditis in Patients with Leukemia, Amer. Heart J. 43, 413, 1952.
2. J. F. de Looch & J. W. Haynes, Secondary Tumors of Heart and Pericardium, A.M.A. Arch. Int. Med. 91, 224, 1953.

Lack of Exercise and Over-eating Called Major Cause of Heart Attack

Lack of physical exercise and overeating, not hard work, are the major causes of heart attacks among business executives in the United States, the American Association of Cereal Chemists was told by Dr. Theodore G. Klumpp.

Scoring the "great American neurosis" that hard work is the cause of heart failure, Dr. Klumpp stated that business executives are apparently the foremost victims of this "false" notion.

"Consequently, they work with mental brakes set against their work and in mortal terror of a heart attack. They are afraid to live for fear of dying."

Contrary to popular belief, Dr. Klumpp said, heart attacks are the climax of a gradual process of arteriosclerosis and are not brought on by violent physical activity on a golf course or by intense mental strain. He cited studies showing that half of such deaths occur during sleep, and only two per cent of heart attacks during severe exertion.

He cautioned adults to determine the amount of physical exercise needed for good health in terms of the degree of activity they were accustomed to in youth. Exercise is important in trying to resist gaining weight because of its "effect on the entire endocrine or glandular pattern that is so vital in avoiding a high blood cholesterol and arteriosclerosis."

"We don't wear out, we rust out, when we slacken physical activity," Dr. Klumpp declared.

"It is becoming increasingly evident that the real culprit is the push-button civilization which our businessmen have created. With the bountiful blessing of labor-saving devices, our ex-college athletes sit in their offices all day, doing little that is more strenuous than answering the telephone or walking to the washroom.

"His thrice-daily escape is found in eating fine groceries, and while he grows fatter his heart, muscles and glands degenerate and stagnate as he drives home in a car with power-steering. If this is the millennium, then all the basic principles of biology and human physiology are a fraud."

Referring to the fact that four times as many men have heart attacks as women, Dr. Klumpp attributed it to a current widely-held medical opinion indicating difference in the anatomical structure of the arteries of the sexes. Women outlive men throughout the animal kingdom even where "most of the work is done by the so-called weaker sex and the male is the idle drone," he said.

Shoulder Injuries

Part One

In the October, 1953, number of MEDICAL TIMES, a discussion of fractures of the clavicle was presented. In this November number we will present a brief review of other common shoulder injuries.

Acromio-Clavicular Separation Subluxations and dislocations of the acromio-clavicular joint are common injuries that usually result from falls and blows upon the point of the shoulder, such as occur in football and other contact sports. The shoulder is violently forced downward, resulting in a tearing of ligaments joining the clavicle and the scromium and coracoid processes of the scapula. A moderately severe injury may cause only a tearing of the capsule of the acromio-clavicular joint (Figure 1), resulting in slight downward displacement of the acromion and shoulder, and prominence of the lateral end of the clavicle. A more severe blow may, in addition, cause a tear of the coraco-clavicular (conoid and trapezoid) ligaments (Figure 2), resulting in more marked deformity, which is readily noted clinically (Figure 3).

The patient seen shortly after injury is unable to use the affected extremity because of pain in the region of the acromio-clavicular joint, where the characteristic deformity, tenderness, and swelling will be found. An x-ray establishes the diagnosis. However, in the case of a subluxation, no separation may be evident on the film. In such a case, if the patient is made to hold a weight of 20 pounds or so in each hand, and an x-ray is taken, showing both shoulders on one film, the acromio-clavicular separation may be seen clearly (Figure 3).

Conservative therapy is usually successful. Three methods of reduction and immobilization have been advocated:

a. Adhesive Taping (Figure 4). The elbow is flexed, the forearm internally rotated, and the arm is forced upward and held by an assistant. Felt pads are placed over the acromio-clavicular joint, in the axilla, and under the elbow. The skin of the arm, forearm, shoulder, back, and chest is shaved and protected with tincture of benzoin. While downward pressure is maintained on the lateral end of the clavicle, a firm adhesive strapping is applied, starting on the back at the waistline, running up over the lateral end of the clavicle, down around the forearm just below the elbow, and back up the posterior surface of the arm and over the shoulder. At least four or five wide loops of tape are required to hold the reduction, and the dressing must be reinforced every day or two by another loop of tape applied under tension, to prevent slipping. The arm is secured to the side of the chest by a circular swathe of stockinette or muslin, and the forearm is held across the chest and supported by a wrist-neck sling.

b. Figure-of-8 Dressing After the padded outer end of the clavicle has been pulled down by adhesive strapping, a plaster figure-of-8 dressing can be used to hold the shoulder up, as in the case of a fractured clavicle.

c. Cast With Strap (Figure 5). A plaster body jacket (holding the shoulder

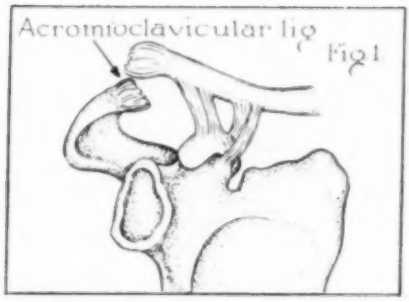


Fig. 1. Partial acromio-clavicular separation (note tear of acromio-clavicular ligament).

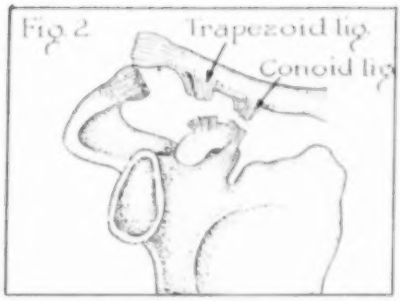


Fig. 2. Complete acromio-clavicular separation (note tear of acromio-clavicular and coraco-clavicular ligaments).

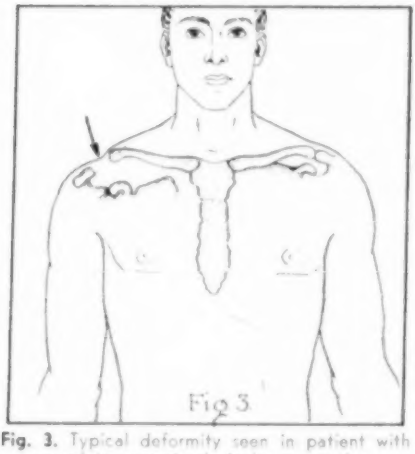


Fig. 3. Typical deformity seen in patient with complete acromio-clavicular separation.

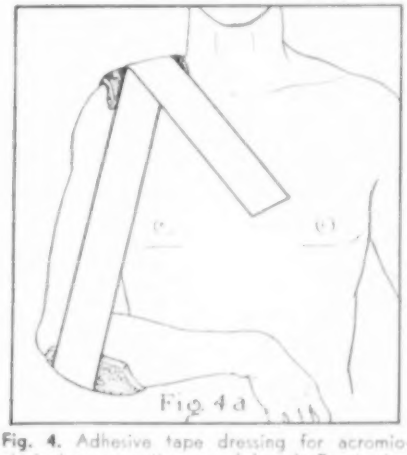


Fig. 4. Adhesive tape dressing for acromio-clavicular separation: a, (above) Front view showing adhesive loop (note felt pads), b, (below) Front view showing completed dressing with swathe and sling.

Fig. 5. Plaster jacket for acromio-clavicular separation (Strap can be tightened to maintain reduction).

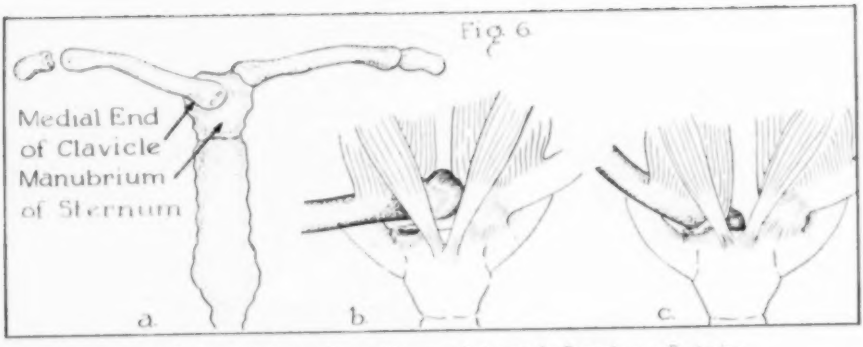


Fig. 6. Sterno-Clavicular Separations: a. Anterior, b. Superior, c. Posterior.

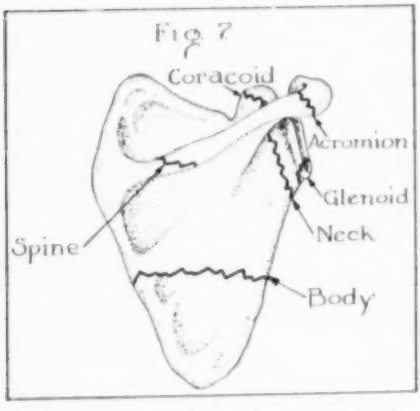


Fig. 7. Common sites of fracture of the scapula.

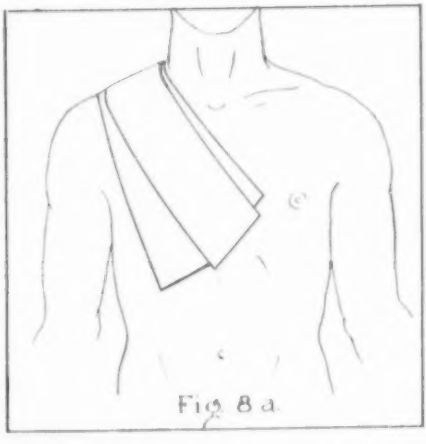


Fig. 8. Adhesive tape strapping for fracture of the body and/or spine of the scapula: a. (above) Front view, b. (below) Back view.

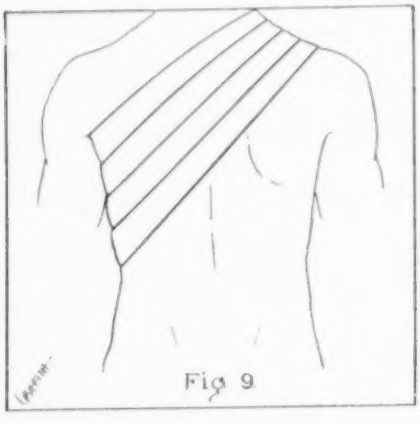
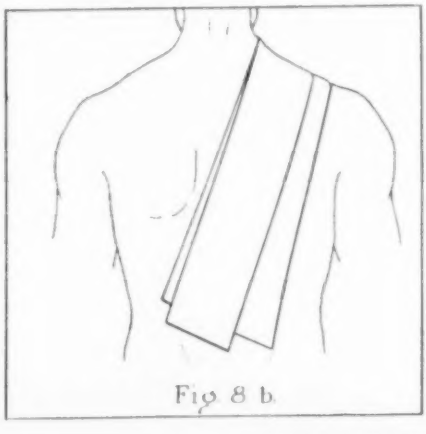


Fig. 9. Alternative method of strapping for fractures of body and spine of the scapula (back view).



up), with an attached adjustable strap passing over the outer end of the clavicle, works well in many cases.

Immobilization by any of these methods should be continued for six to eight weeks to assure healing of the torn ligaments. At the end of that time, physiotherapy must be started to restore full shoulder mobility.

Chronic dislocation of the acromio-clavicular joint is a common complication of acute acromio-clavicular separation, especially in the case of a complete tear of the coraco-clavicular ligaments. This condition may not be symptomatic, but if it is painful it can be treated by pinning the acromion to the clavicle by means of intramedullary pins. However, the treatment that seems to be more uniformly successful is excision of the lateral end of the clavicle, with suture of the stump of the clavicle to the coracoid process. This method is also advised by many surgeons as the initial treatment of acute complete dislocations, especially in older patients in whom the prolonged immobilization required by "conservative" treatment is inadvisable because of the danger of producing a "frozen shoulder." Operative therapy is obviously not office procedure, but the advisability of such treatment should be considered by the physician who originally sees a patient with an acute acromio-clavicular separation.

Sterno-Clavicular Separation

Dislocation of the sternoclavicular joint is usually anterior, i.e., the medial end of the clavicle comes to lie over the manubrium of the sternum (Figure 6a). It may be complete (true dislocation) or incomplete (subluxation), and is caused by forced dorsal displacement of the upper extremity while it is abducted. It is recognized by the prominent tender protuberance of the medial end of the clavicle over the manubrium.

Less common is superior dislocation (Figure 6b) (always complete), which is recognized by palpation of the end of the clavicle in the suprasternal notch.

Posterior dislocation (partial or complete) (Figure 6c), is the most serious type of sterno-clavicular separation, since the medial end of the clavicle may be forced against the great vessels and the trachea. It is usually caused by direct violence.

Treatment of the incomplete dislocations (in which the joint capsule is only partially torn) is manual reduction and immobilization in a figure-of-8 plaster dressing for five to six weeks. For complete dislocations, also, conservative therapy may be effective, but operative treatment is often needed. This consists of open reduction, followed by suturing the torn capsule of the joint and tying the clavicle to the manubrium with fascia strips or wire passed through holes drilled in the two bones. This procedure is also recommended for recurrent dislocations.

Fractures of the Scapula may involve any or all of its component parts (Figure 7):

a. Body Fracture of the body or blade of the scapula is usually the result of direct violence. The diagnosis is suspected from local tenderness and swelling and is confirmed by x-ray. There is frequently considerable comminution, but rarely significant displacement. Treatment by adhesive strapping is usually satisfactory; the tape is run over the top of the shoulder from the mid-chest anteriorly to the level of the waist posteriorly (Figure 8). An alternative method is to run the tape from the anterior axillary line on the affected side across the back over the injured scapula, to just over the top of the opposite shoulder (Figure 9). A sling may be used to support the arm but the arm should not be strapped to the chest wall because of the resultant stiffness of the shoulder. Every day the arm should be removed from the sling, and the patient, bending forward at the waist, should rotate the shoulder actively through as wide a range of motion as is possible.

This is a self-healing fracture, and only rarely, if ever, is internal fixation necessary. Full use of the extremity without pain should be possible in two or three weeks after injury.

b. Spine Fractures of the spine of the scapula are usually associated with fractures of the body, and are treated in the same manner.

c. Neck Fractures of the neck of the scapula result in loss of support of the arm. They usually result from falls on the arm or hand. If the ligaments remain intact, there is little or no displacement of the fragments, and either the acromio-clavicular dressing described above or a simple sling for three weeks is sufficient for good healing. Active shoulder exercises should be started as soon as the immobilization is discontinued. If the ligaments and muscles are torn and the displacement is marked, the acromio-clavicular dressing may be tried, but if the post-reduction x-ray reveals that the reduction is poor, an abduction spica or lateral traction in recumbency may be necessary, and the advice of an orthopedic surgeon is recommended.

d. Glenoid Chip fractures of the glenoid are common in association with dislocations of the shoulder. If there is little or no displacement of the fragment, treatment of the dislocation (as outlined below) is all that is necessary. More extensive fractures of the glenoid frequently accompany fractures of the neck of the scapula, especially those produced by direct violence. If the displacement is great, treatment by abduction spica or lateral traction in recumbency may be required, and an orthopedist should be consulted.

e. Coracoid Process Fractures of the coracoid process usually result from direct violence, and are quite rare. A pressure pad is strapped over the coracoid and a sling is used for the support of the arm. Daily active shoulder exercises should be started on about the third day. Healing is usually complete in three weeks.

f. Acromion Process A fracture of the acromion process results from a blow on the point of the shoulder. The outer fragment is pulled downward by the deltoid muscle and the weight of the arm. There is swelling, tenderness, and irregularity of contour over the acromion. An acromio-clavicular dressing for four to six weeks is adequate.

(Part Two of this presentation will appear in next month's issue).

Comfortable Environment Needed by Patient with Heart Trouble

A patient with heart disease should remain in a comfortable environment, even if air-conditioning equipment is necessary. This opinion was expressed in an editorial in a recent *Archives of Internal Medicine*, published by the A.M.A.

A hot and humid environment has essentially the same influence upon cardiac work and reserve as physical exertion. As environmental temperature and humidity rise, the cardiovascular system aids in eliminating body heat by increasing the rate of blood flow through the skin, which, in turn, increases the work load of the heart.

"There is need for greater use of air-conditioning of the cardiac patient's room, ward or hospital. Bed rest in an air-conditioned room can assure cardiac rest, whereas bed rest in a warm bed and room may effect skeletal muscle rest but greater cardiac work.

"The oxygen tent should be used on hot and humid days primarily for the thermal influences rather than for the oxygen itself."

EDITORIALS

Blood Regulating Center in the Brain

It is interesting to note that Seip,* has described a blood regulating area in the basal part of the brain near other important vegetative centers. This blood regulating center is probably in the hypothalamus near the tuber cinereum. This area gets its arterial blood supply from the vertebral artery.

To a certain extent this center probably relays its action through the parasympathetic and sympathetic nerves to the bone marrow; the parasympathetic nerves carrying the impulses which increase the flow of reticulocytes and the erythropoiesis; the sympathetic nerves inhibit these processes. Apparently the impulses from this regulating center initiate the formation of reticulocytosis-producing substances. These are possibly formed in the liver.

Changes in the oxygen concentration in the body effect erythrocyte production; these changes probably occur in the blood regulating center in the brain. Hypoxia causes liberation of reticulocytes from the bone marrow. This regulating center also effects leukopoiesis and blood destruction.

This theory may explain why some old people do not respond to therapy of pernicious anemia. In spite of liver or vitamin B_{12} many of these patients fail to improve. This may be due to a disturbance of the blood-regulating center in the brain. Perhaps arteriosclerosis of the vertebral artery may be a cause. It might be an explanation of changes in oxygen concentration in the brain area.

Evidently ACTH has little immediate effect on this condition. Nor do other hormones apparently cause impulses from the assumed blood-regulating center to the bone marrow; however, several hormones unquestionably influence erythropoiesis. At this time it is impossible to say whether this regulating action is on the bone marrow or on the regulating center in the brain.

Seip also found in ten normal adults of both sexes that erythrocyte production per c. m. a day was from 39,000 to 70,000 erythrocytes with an average of 51,400. In studying the life span of erythrocytes he found that in men it was 126 days and in women 99 days, with an average of 110 days. It is believed that the secretion of sex hormones in man is probably the cause of a higher erythrocyte level than in women. Also there is a difference in the red blood cell count from the masculine type of woman and the feminine type of woman. Estrogens seem to be the cause of lower red blood cell production.

M.W.T.

Ancient Greek Poet Joins Staff of a Research Laboratory

Writing interestingly on the warm-bloodedness of the mammal man in the

* Seip, Martin: Reticulocyte Studies. Acta Med. Scandinav. Suppl. 272: 164, 1953.

Scientific Monthly of September, 1953, Dr. Simon Rodbard of the Medical Research Institute, Cardiovascular Department, Michael Reese Hospital, Chicago, invokes Hesiod, Greek poet who lived about 700 B.C., in giving a clue to hypertension:

> "The ancients tell us that Zeus was infuriated by the theft of the heavenly fire by Prometheus who gave it to man. To vent his spleen, Zeus fashioned the all-endowed Pandora, gave her a jar filled with evils, and sent her as a gift to Prometheus' brother, Epimetheus. She was accepted despite dire warnings of Prometheus about gifts from the Greek gods. The opening of the jar and the escape of its contents was the inevitable outcome. We may look in similar vein upon the mechanisms for adjusting to the Promethean fire of warm-bloodedness which has brought on us a Pandora's vessel containing high blood pressure, hardening of the arteries, and heart failure, but also Hope."

This is an instance of how we have to rely at times upon even ancient Greek genius for metaphors illuminating brilliantly and creatively the research of today; the ancient concept may be startlingly applicable when nothing else fits the necessity of expression.

Our warm-bloodedness, it seems, has to do with atavistic hibernating mechanisms, functions long forgotten but once important for man's survival; it is the masking of the old hibernating function which once upon a time enabled us to escape from control by an extremely cold environment in an early geologic period which now sometimes gets us into serious physiologic trouble.

Is the Cigarette Industry a Scapegoat?

Suggestions are being made by eminent medical authorities that the cigarette manufacturing industry, as a moral obligation, assume the expense of research work to prove or disprove the suspected relationship between smoking cigarettes and lung cancer.

What is really needed is a tax upon the profits of all industries which are benefited by inventions making such profits possible, since such inventions are results of scientific advances, the taxes to be devoted to the costs of scientific research.

There is no sense in making an invidious attack upon the cigarette industry; the basic principle in all cases has to do with the matter of profits derived as outlined above.

T. Brailsford Robertson, in his *The Cash Value of Scientific Research*, puts it reasonably: "It is vital that public sentiment should be educated to the point of providing the legal machinery whereby some proportion, no matter how small, of the wealth which science pours into the lap of the community, shall return automatically to the support and expansion of scientific research. The collection of a tax upon the profits accruing from inventions (which are all ultimately if indirectly results of scientific advances) and the devotion of the proceeds from this tax to the furtherance of research would not only be a policy of wisdom in the most material sense, but it would also be a policy of bare justice."

Instead of punitive measures for hypothetic sins let us have a just one applying to virtually all industry. We seem stupidly (?) to overlook a tax that calls insistently for institution while yelling for the dubious punishment of an industrial unit.

Maybe it is not stupidity; maybe that unit is a scapegoat whereby the tax suggested may continue to be ducked.

Red China's Medicine

Despite good supplies of antibiotics and other essential drugs, and despite the large number of hospitals built by the United

Nations Relief and Rehabilitation Administration just before the Communist conquest of 1949, the condition of completely socialized medicine in Red China is a sad spectacle. This has been reported on in considerable detail by Dr. Howard A. Rusk.

Just as we would have expected, the system is hopelessly bogged down by the vast amount of paper work alone, insisted upon by the true-to-form Red socializers.

For the socialist mind paper work is the only reality. The individual with a sick gallbladder is obscured by the mountain of paper work which covers him.

We should always take a dim view of systems which similarly prevent trained physicians from being fully effective. This sort of thing has happened at times in parts of the world other than Red China.

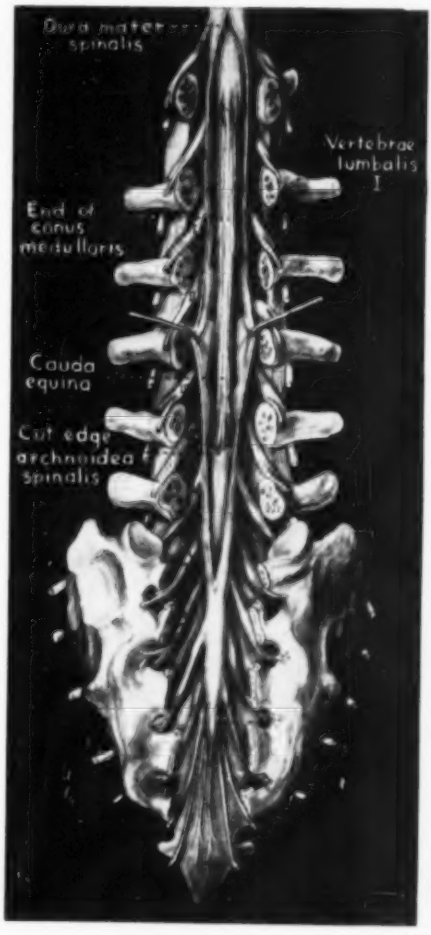
It's a rough index of the socialist trend. Britain is a prime example, with its "endless paper work" (*Life*, October 12, 1953, page 196).

Effects of Disease on Civilization and Culture

Dr. Rene Dubos, of the Rockefeller Institute, in a recent discussion of "The Effects of Diseases on Civilization and Culture," made the interesting point that Stalin's control of the Russian state was an effect of a disease, for when Lenin died, Trotsky delayed in returning to Moscow and Stalin thereupon seized the helm of the ship of state. Trotsky's delay was due to incapacitation in the Crimea by an ulcer. Trotsky was really the top Communist of the three leaders and would have liquidated Stalin in short order if he had been in his usual fighting trim. Not that there was any choice between these rascals from our Western point of view; the point to be emphasized, however, is that of Dubos—we have a specific instance of how disease sometimes affects civilization and culture. But we venture to suggest that the rascality and stench of Trotsky in power would have had dire results of a different (and probably worse) kind from those that flowed from the deplorable rule of Stalin.

Clini-Clipping

Anatomical drawing of membranes in the vertebral canal to show pathways of pantopaque during myelography. [after Spalteholz].



MEDICINE

MALFORD W. THEWLIS, M.D.*

Mercurial Diuretics: The Replacement of Parenteral Administration by a New Oral Preparation in Ambulatory Patients with Cronic Congestive Heart Failure

S. P. Dimitroff and associates (*Circulation*, 7:380, March 1953) report the treatment of 35 patients with congestive heart failure with a new oral mercurial diuretic, Ex 1431. All of these patients were ambulatory and most of them had been given Mercuhydrin injections once or twice weekly before the use of the oral mercurial was begun. The Ex 1431 tablets used are enteric coated and contain 10 mg. of organic mercury each. The dosage employed varied, but most frequently one tablet was given three times a day twice weekly at intervals of three or four days; in some cases one tablet was given three times a day once weekly, and in others, three times weekly; occasionally one tablet was given twice a day for five days a week. The patients in this series were under observation for periods of one to eleven months. The results of treatment with the oral mercurial were considered satisfactory if there was no progression of symptoms of congestive failure and "dry weight" was maintained; and if the functional classification of the patient was as good as or better than when the oral mercurial was substituted for other mercurials; in some patients hepatomegaly was present; if this decreased or remained the same, this was also considered as evidence of a satisfactory result. The oral drug was considered to be a failure if the symptoms of congestive heart failure progressed or recurred after having been held "in abeyance" by mercurial injections. On this basis, 28 of the 35 patients showed a satisfactory response to the oral mercurial; satisfactory results were obtained in 11 of 14 patients with rheumatic heart disease; 3 of 4 patients with arteriosclerotic heart disease; 3 of 6 patients with arteriosclerotic disease and hypertension; 2 with syphilis and hypertension; 7 with hypertension; and 2 with cor pulmonale. Results were satisfactory in 4 patients in whom the duration of cardiac failure was less than one year, as well as in patients with a duration of congestive symptoms of over five years. Signs of toxicity were observed in 6 patients, chiefly abdominal cramps, nausea and occasional vomiting and diarrhea. There was no renal injury in any case. From the results obtained in these cases, the authors conclude that Ex 1431 given by mouth gives as good results as mercurial diuretics given by injection with less toxicity, in the more chronic phases of congestive heart failure, after the acute rapidly progressive phase has been controlled; and also in some cases of early or slowly progressive congestive failure, but not in "sudden, rapidly changing or progressive" cardiac failure.

Thewlis

* Attending specialist in general medicine, United States Public Health Hospitals, New York City; consulting physician, South County Hospital, Wakefield, Rhode Island; special consultant, Rhode Island Department of Public Health.

COMMENT

There are many patients who benefit from the oral use of mercurial diuretics. In more severe cases one can begin with intramuscular injections and follow with tablets by mouth.

M. W. T.

Cortisone in Treatment of Shoulder-Hand Syndrome Following Acute Myocardial Infarction

H. I. Russek and associates (*A.M.A. Archives of Internal Medicine*, 91:487, April 1953) report the use of cortisone in the treatment of 17 patients with the shoulder-hand syndrome following an acute myocardial infarction. All of the patients in this series had had myocardial infarctions, and some of them continued to have recurrent attacks of angina pectoris. The interval between the acute attack of myocardial infarction and the onset of symptoms of the shoulder-hand syndrome varied from four to eighteen weeks, the mean interval being 6.9 weeks. In 8 of the patients, the shoulder-hand syndrome was in the first stage, in the other patients in the series it was more advanced. All these patients had had physical therapy, manipulative treatment or local and stellate ganglion block without relief of symptoms. The usual initial dose of cortizone was 200 mg. given by mouth or by intramuscular injection in divided doses for two days; in 2 cases the initial dose for the first two days was 300 mg., then the dosage was gradually reduced to 50 mg. daily which was continued through the third week. In 5 of the patients there was complete relief of the symptoms of the shoulder-hand syndrome under treatment with cortisone; 8 patients showed "marked improvement," 3, "moderate improvement," and only one had no definite relief. In the patients showing a favorable response to the treatment, the relief of pain was prompt, within two or three days. Vasomotor symptoms were also reljeved, with improvement in the temperature and color of the hand and the disappearance of edema. Improvement in the range of motion occurred more slowly, and was more evident in the shoulder than in the hand. In the 5 patients showing the greatest degree of improvement, there was complete return of the normal range of motion in the shoulder; in 8 patients there was "residual limitation of abduction." There were no thromboembolic complications from the use of cortisone in this series. None of the patients who showed a favorable response to cortisone had any recurrence of symptoms after treatment was discontinued; in most cases, there was continued improvement during the follow-up period of several months (up to eighteen months). On the basis of these results the authors conclude that cortisone is "a safe and extremely effective form of treatment," in the shoulder-hand syndrome complicating acute myocardial infarction, and not relieved by other methods of treatment.

COMMENT

I have found this satisfactory. M. W. T.

Polymyxin B in Chronic Pyelonephritis

James Hopper, Jr. and associates (*American Journal of the Medical Sciences*, 225:402, April 1953) report the use of Polymyxin B in 15 cases of chronic pyelonephritis. In 8 of these cases, the renal function, as determined by creatinine clearance tests, was good; in these cases Polymyxin B was given in a dosage of 1.7 to 2.2 mg. per kg. daily for nine to fourteen days, without evidence of any nephrotoxic action. In the 7 cases in which the creatinine clearance tests showed some degree of impairment of renal function, smaller doses of Polymyxin B (0.8 to 1.8 mg. per kg. daily) were given, but in four of these patients there was further depression of kidney function during the administration of the drug. In most cases susceptible Gram-negative bacteria disappeared from the urine during treatment with Polymyxin B, but *Proteus*

organisms, some strains of *Pseudomonas* and Gram-positive bacteria were not affected; the Gram-negative bacteria, however, usually reappeared in the urine one to four months after Polymyxin B was discontinued. This failure to eradicate infection with susceptible organisms can be attributed to the short duration of the treatment or possibly to "poor penetration" of the drug into the infected area in the renal parenchyma. A more prolonged course of treatment might be more effective, and would apparently be safe in patients with good renal function. In some patients in whom the course of treatment with Polymyxin B was followed by the administration of small doses of sulfonamides urine cultures have remained negative "for many months."

COMMENT

This treatment with Polymyxin B should be satisfactory in many instances. I like the method of using treatment ten days each month for three months.

M. W. T.

Chloramphenicol and Terramycin in the Treatment of Pneumonic Plague

F. R. McCrumb, Jr. and associates (*American Journal of Medicine*, 14:284, March 1953) report the treatment of 13 cases of pneumonic plague with chloramphenicol (6 cases), Terramycin (2 cases) and streptomycin (5 cases). In all these cases the *Past. pestis* was isolated from the sputum, and the symptoms were typically severe. Chloramphenicol was given in an initial dosage of 500 mg. by mouth and 500 mg. intravenously; this was repeated twice at intervals of three hours, then 4 Gm. daily was given by mouth for two days, and 2 to 3 Gm. daily for another four or five days. The dosage of Terramycin was the same. In one case streptomycin was used to replace chloramphenical, and in another case Terramycin; in 3 cases streptomycin alone was used, given intravenously. In all the cases in which treatment was begun within sixteen hours after the onset of symptoms, the fever and clinical symptoms subsided rapidly and the patients made a good recovery, although the roentgenological evidence of pneumonitis subsided more gradually. In one case in which treatment was begun twenty-four hours after onset of symptoms, the patient ultimately recovered, but the clinical course was prolonged and severe. Two patients treated later in the course of the disease, died. As the mortality in this series of cases was 15.4 per cent, as compared with nearly 100 per cent, which has been characteristic of pneumonia plague, these results indicate the value of the new antibiotics in this disease, but also emphasize the importance of early treatment. Five illustrative cases are reported. These cases were treated at the Institute Pasteur de Tananarive, Madagascar, in collaboration with French physicians.

COMMENT

The results of treatment with chloramphenicol, Terramycin and streptomycin reported in this article are excellent. Apparently streptomycin is as effective as the other agents.

M. W. T.

Allergic Reactions to Therapeutic Agents: Treatment with Adrenocorticotropic Hormone (ACTH) or Cortisone

L. E. Shulman and associates (*Bulletin of the Johns Hopkins Hospital*, 92:196, March 1953) report 24 cases of hypersensitivity reactions treated with cortisone, ACTH, or hydrocortisone; in 13 cases the sensitivity reaction was due to penicillin, in 8 to horse serum (tetanus or diphtheria antitoxin) and in one each to sulfonamides, para-aminosalicylic acid and gold. ACTH was given intramuscularly or by intravenous infusion; cortisone was given by mouth, and Compound F by mouth or intramuscular injection. In most cases, the response to treatment was "prompt and complete;" in 8 cases treated with cortisone given by mouth, excellent results were obtained, and the response was

rapid. In one patient who showed an allergic reaction to penicillin and in another with an allergic reaction to para-aminosalicylic acid, cortisone and ACTH suppressed the allergic symptoms, even though the medication was continued, as was indicated in these 2 cases. In 29 of the patients with serum sickness, there was evidence of involvement of the nervous system; intravenous infusions of ACTH resulted in prompt relief of the neurological symptoms with no residual disturbance. More experience is necessary before definite conclusions in regard to the significance of these findings can be established, but the early administration of large doses of ACTH or cortisone would appear to be indicated in cases of this type. The authors also note that in over 600 patients treated with ACTH at the Johns Hopkins Hospital, many being given multiple courses of treatment, only 5 developed an allergic reaction, all of the serum sickness type; in one of these cases, the allergic reaction subsided during treatment with cortisone, given by intramuscular injection.

COMMENT

In severe cases intravenous infusion of ACTH is necessary. In less severe ones injections or oral medications are indicated. I use these medications routinely in all cases of allergic reactions; they work. M. W. T.

SURGERY

BERNARD J. FICARRA, M.D.*

Intestinal Obstruction Resulting from Biliary Calculi (Gallstone Ileus)

Samuel Shore and associate (*A.M.A. Archives of Surgery*, 66:301, March 1953) report 7 cases of gallstone ileus in 6 patients, two attacks being observed in one patient. These cases represent 5 per cent of the 136 cases of acute small bowel obstruction seen at the Los Angeles County Harbor General Hospital in three years, January 1949 to January 1952. Two of these patients died, including the patient who had two attacks of gallstone ileus. In this case, there was no history of gallbladder symptoms; the diagnosis in the first attack was based on the fact that this patient had had no previous abdominal operation and that roentgenological examination showed findings characteristic of cholecysteoenteric fistulization, and a faceted obstructing gallstone was extracted by celiotomy from the jejunum. Ten days later another calculus causing obstruction of the terminal ileum was palpated transrectally in a loop of small bowel; the patient died after operation for removal of this stone. A review of the literature indicates that this is the eleventh case of recurrent gallstone ileus to be reported. In the other fatal case, there was no history of previous gallbladder disease, and the diagnosis of gallstone ileus was not made before operation. All of the 6 patients in this series were women, ranging in age from sixty-seven to ninety-three years with an average of seventy-eight and a half years. In 3 of

Ficarra

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these cases, the diagnosis of gallstone ileus was not made prior to operation; in the other cases it was made correctly on the basis of the history and x-ray examination. Reports in the literature indicate that gallstone ileus is being correctly diagnosed more frequently in recent years. These reports as well as the authors' series indicate that it is most likely to occur in elderly women with no history of a previous abdominal operation, and this condition should be suspected if acute small bowel obstruction occurs in such patients. In establishing the diagnosis "a careful evaluation" of the history, the physical examination and the x-ray findings is essential, together with any available laboratory aids. In using the barium enema, in such cases, it is important to permit reflux of the barium proximal to the ileocecal valve. If, at the time of operation, a faceted stone is found to be the cause of the intestinal obstruction, a careful palpation of the gallbladder should be done to determine if "a matching stone" is present; if such a stone is found it should be removed by cholecystostomy; if it is not found, exploration of the proximal bowel should be done. A follow-up study of 4 patients in this series who recovered from the operation indicates that symptoms of gallbladder disease may persist after operation for gallstone ileus. In such cases, unless there is serious operative risk, "an interval cholecystectomy" is to be recommended.

COMMENT

The literature is becoming more and more replete with reports on gallstone obstruction. In my own experience I have seen this clinical picture on the emergency service on four different occasions during the past eight months. It is interesting to note that most of these gallstones become impacted in the terminal ileum. Usually these patients have a pre-renal azotemia as revealed by blood chemistry study. This report by Dr. Shore and his associates reveals that two of their 6 patients died. This indicates that the mortality in this type of obstruction is quite high. The reason for this is the profound disturbance in the normal physiological chemistry of the human body. When this disturbance occurs in an elderly patient the outcome is usually fatal if the chemical imbalance is not corrected rapidly (especially before surgical intervention). B. J. F.

Recurrent Hernias: An Analysis of 369 Consecutive Cases of Recurrent Inguinal and Femoral Hernias

E. A. Ryan (*Surgery, Gynecology and Obstetrics*, 96:343, March 1953) reports a study of 369 cases of recurrent hernias, of which 194 were indirect inguinal hernias, 167 were direct inguinal hernias and 8 were femoral hernias. The highest incidence of recurrence in hernias after the first repair was within six months after operation and 55 per cent of such recurrences occurred in the first two years after operation. In recurrences in hernias repaired more than once, the highest incidence of recurrence was in the first month after the last operation, and 66 per cent of the recurrences occurred within one year. In hernias recurring as indirect hernia after the first repair, the most common cause of the recurrence was found to be inadequate removal of the hernial sac; in other cases recurrence was due to failure to close the transversalis fascia adequately around the cord, with resulting "laxity" of the internal ring. In hernias recurring as direct hernias, weakness of the posterior wall of the inguinal canal owing to "inadequate" repair was found to be the chief cause of recurrence. In both groups, a "missed" hernia was the cause of recurrence in some cases, in which one hernia had been repaired, but another small or "potential" hernia overlooked. In 86 per cent of the recurrences, the patients were not doing heavy work. In cases of once recurrent hernias, the incidence of direct hernia was more than twice as great as in original hernias; in hernias recurring more than once, the direct hernias were more frequent than indirect hernias, indicating that after repair of a hernia, the "greatest site of weakness" is in the direct hernia region. In the series of 369 cases of repair of recurrent hernia reported, a follow-up

showed no further recurrence within one year; in 150 patients examined by a physician more than two years after operation, the recurrence rate was 1.3 per cent, or 0.8 per cent "overall" for the entire series. In this series of cases early ambulation after operation was the rule, and the evidence indicates that this procedure was of definite benefit.

COMMENT

The recurrence of hernias even in the hands of the expert surgeon is still quite high. This is not the fault of the surgical repair but often the recurrance is based upon some inherent defect in the patient's tissues. It is the common experience of many surgeons to operate upon a patient for a hernia only to find attentuated tissues which are fimbriated and cannot tolerate even an atraumatic suture. Under these circumstances the surgeon may turn to fascial strips, various types of mesh, etc. In spite of all these a failure may take place. The surgeon should not feel that he has been at fault, but must accept a certain number of failures as inevitable. B. J. F.

Roentgen Rays and Wound Healing: An Experimental Study

Walter Lawrence, Jr. and associates (*Surgery*, 33:376, March 1953) report experiments on young rats in which abdominal incisions of a standard type were made at varying periods after irradiation of the area. The dosage of irradiation used was in the range of "clinical therapeutic dosage" and the surgical wounds were camparable to laparotomy incisions in human patients. Similar incisions were made in control rats who had not been irradiated; and the rate of healing of the wounds as measured by tensile strength was compared in the irradiated animals and the controls. In the irradiated animals all wounds eventually healed, reaching the maximal tensile strength, but in some of these animals there was a delay in the rate of healing. This delay in healing was most marked in those animals in which the abdominal incisions were made immediately after or one week after the irradiation. When the incisions were made three weeks to twelve weeks after irradiation, the difference in the "healing curves" of the wounds as compared with the controls was not significant. The presence of irradiation-induced erythema did not affect the healing of the wound in these experiments. These findings lead the authors to conclude that healing of surgical wounds in areas that have been recently irradiated is impaired only in the rate of healing of the wound, not in the final strength of the wound. Even this is impairment to be expected only in tissues recently irradiated, within a week, and there seems to be no "practical advantage" in delaying any surgical operation indicated for more than three weeks after radiation therapy involving the area of operation.

Method of Intestinal Anastomosis Without the Use of Clamps

Harry Berman and F. S. Mainella (*Annals of Surgery*, 137:547, April 1953) describe a method for intestinal anastomosis which renders the use of rubber clamps unnecessary. For this method a sterilized foam rubber sponge is cut on the operating room table, to fit the circumference of the bowel in each case. For an end-to-end anastomosis, the foam rubber strip is placed at one end of the bowel to be anastomosed and held in position by the surgeon with thumb and index finger and tied by an assistant. The same procedure is carried out at the other end of the bowel. The escape of intestinal contents is prevented by this method, and the foam rubber is removed when the anastomosis is completed. This foam rubber can be used in a similar way for lateral anastomosis, for ileostomy and in resection of the large bowel. In ileostomy, the foam rubber strips are applied as far apart as is necessary, after "milking" the bowel of its contents, and the ileostomy tube can be inserted the necessary distance without danger of contamination or of kinking of the tube. The foam rubber is also used in resection of

the large bowel, it being removed when the first row of sutures is completed. This method avoids the use of clamps that may cause injury to the bowel, are "cumbersome," and often interfere with successful anastomosis, especially when the bowel is small, as in children. The authors suggest that this method might also be of value in blood vessel surgery.

Treatment of Burns by Excision and Immediate Skin Grafting

A. H. Whittaker (*American Journal of Surgery*, 85:411, March 1953) describes a method for the treatment of burns by excision of the burned tissue within a few hours, followed by immediate skin grafting. While this method was first used in smaller burns, in 1942, it has since been employed in more extensive burns, especially in those involving the neck and the joints. The best results are obtained when the operation is done by "a team" of two surgeons, an assistant, an anesthetist and a transfusionist. As soon as the intravenous anesthetic is effective, the burned area is cleaned: one surgeon excises the tissue destroyed by the burn, and the other prepares the grafts. Blood transfusion is given during the operation, as indicated. The grafts are kept moist in saline, and given to the surgeon who has excised the burned tissue; he and the assistant suture the grafts "loosely" over the defect, but without attempting to use them as an inlay; incisions are also made in the grafts so as to provide for the escape of blood. An elastic pressure dressing is used, with a paraffin net over the grafted areas. If an extremity is involved, it is immobilized in a plaster mold, with care to place it in "a position of function." Unless there is evidence of infection, the dressings of the grafted area are not changed for ten days. During this period special attention is given to the treatment of the patient's general condition, to counteract the systemic effects of the burn. Excellent results have been obtained with this method, especially in maintaining good function of hands, feet, and other joints.

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MEDICAL BOOK NEWS

Experimental Bacteriology

Experimentelle Bakteriologie und Infektionskrankheiten mit Besonderer Berücksichtigung der Immunitätslehre. By W. Kolle & H. Hetsch. 11th Edition. Edited by Prof. Dr. Hans Schlossberger, Munich. Urban & Schwarzenberg, [c. 1952]. 8vo. 986 pages, illustrated. Cloth, 72.40 DM.

The text book of Kolle and Hetsch has been one of the world's most widely used texts for over fifty years. The death of both of the original authors has left its continuation and revision to other hands.

This is an extensive volume of nearly a thousand pages, covering the bacteria of medical importance, the Rickettsiae, and the pathogenic yeasts, molds, and protozoa. (Helminths are not included.) Over two hundred pages are devoted to animal viruses and their diseases.

The emphasis in this book is placed upon those things directly concerned with human disease. This includes etiology, epidemiology, pathogenesis, pertinent pathology, and the laboratory diagnosis of disease. There is no formal discussion of microbial physiology or genetics, or the effect of physical and chemical agents on microbes. General, basic immunology is treated rather briefly.

The illustrations are numerous and excellent. It is disappointing that though many authors are cited in the text, only a few of them are included in the bibliography.

ARNOLD H. EGGERTH

Psychobiology

Sexual Behavior in the Human Female. By the Staff of the Institute for Sex Research, Indiana University, Alfred C. Kinsey, Sc.D., Clyde E. Martin, Wardell B. Pomeroy, Paul H. Gebhard, Ph.D. (Anthrop.), Research Associates. [With nine assistants]. Philadelphia, W. B. Saunders Co., [c. 1953]. 8vo. 842 pages, illustrated. Cloth, $8.00.

No doubt any one reading this review already knows that the major part of the book is devoted, with many statistical tables, to reports of the sexual activity of many females. We may accept without reservation the honesty of the authors in their presentations. We must somewhat qualify the correctness of the information given by the interviewees. This is due to the uncertainty of memory, somewhat to the repression, voluntarily or subconsciously, of certain activities, but hardly ever to intentional deception.

In the course of this study the histories of nearly 8,000 females were secured but the statistical data are based on 5940 histories of "white, non-prison females"; the victims of the Law were not considered fair samples and the non-whites were not sufficiently numerous. The authors apologize, in both senses of the word (regret, defense), for their inability to secure a complete, spot sample of the female population of the United States. With this impossibility we quite agree.

However we do think the sample very

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heavily weighted. Geographically the material comes mainly from Illinois, Indiana, Ohio, Pennsylvania, New York, New Jersey, California and lower New England and almost none from the Southeastern quarter of the country, the Pacific Northwest, the High Plains or the Rocky Mountain area. Sociologically and educationally it came from modernly educated women, naturally to be considered liberal (free).

Recently we were told that, at the time of arriving at a population of 160 millions, about 59 percent or some 90 million people were affiliated with the three, here, major religions, Protestant, Catholic, Jewish; say one-half females, one-half of them adult or adolescent, not less than 25 million. Do the authors or you, think that, with all these millions, with their taboos counted in, the ratio of sexual activity will be so high?

To state the object of the study, we think that the need for brevity will not vitiate the correctness of a few quotes out of context: "the original goal of our study was the extension of our knowledge" in a neglected field; "it has become apparent that the data we have acquired may prove of value in the consideration of some of our social problems". They claim but argue "The Right to Investigate" and "The Individual's Right to Know". In the scope of a review one can but question these and the implied value and lack of damage in spreading all knowledge.

A review of such a book cannot be an abstract and we shall hardly touch its statistical contents. However correct it may be, we think that the presentation of the arguments against pre-marital coitus does not at all represent the picture of our past, and perhaps, present cultural mores. For our not too remote ancestors, was not FEAR the major deterrent? First, fear of pregnancy, now hardly a thought among informed adults, though there are a vast number of uninformed, but certainly not as at the turn of the century. Second, fear of discovery and consequent opprobrium. Why, now, be discovered and, if so, who will be an outcast? Third, fear of offense against our religious ideas and the remorse one may feel, perhaps to an alarming degree.

With the authors' views on sexual laws we are in hearty accord. In the main they are illogical and unenforceable. When enforced such action is haphazard and, often, the effect of some emotional outburst of the public.

We are rather at a loss to know how far "sexual behavior" extends and what determines satisfaction. Apparently it goes just beyond "total outlet", with orgasm, despite some disclaiming, the measure, aim, and end of sexual activity. But what of the physical and, more, the psychic symptoms which follow immediately or later all these kinds and degrees of sexual activity? Are they not part of sexual behavior? If not a part, they surely are the result thereof. It seems that we must be content to concede that this is not included in this study. Medically speaking we have anamnesis, concurrent symptoms, but neither late symptoms nor prognosis.

We quite understand that the authors completely disclaim concern with the moral and, mostly, social aspects, leaving the treament—to follow the analogy—to the clergy, sociologists, teachers and others concerned. That is, it is the duty of the last group to do what should be done for the good of the community and its members.

It still looks to this reviewer like a vast lot of new information but *cui bono*, what to do about it? It makes him think of Hamlet with Hamlet left out.

Walter D. Ludlum, Sr.

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AMERICAN MEDICAL ASSOCIATION

The N.N.R. monograph on Furadantin states:

EATON Laboratories Inc.
NORWICH NEW YORK

"**Nitrofurantoin.—Furadantin (Eaton).—**

Actions and Uses.—Nitrofurantoin, a nitrofuran derivative, exhibits a wide spectrum of antibacterial activity against both gram-positive and gram-negative micro-organisms. It is bacteriostatic and may be bactericidal to the majority of strains of Escherichia coli, Micrococcus (Staphylococcus) pyogenes albus and aureus, Streptococcus pyogenes, Aerobacter aerogenes, and Paracolobactrum species. The drug is less effective against Proteus vulgaris, Pseudomonas aeruginosa, Alcaligenes faecalis, and Corynebacterium species; many strains of these organisms may be resistant to it. However, bacterial resistance to other anti-infective agents is not usually accompanied by increase in resistance of the organisms to nitrofurantoin. The drug does not inhibit fungi or viruses.

Nitrofurantoin is useful by oral administration for the treatment of bacterial infections of the urinary tract and is indicated in pyelonephritis, pyelitis, and cystitis caused by bacteria sensitive to the drug. It is not intended to replace surgery when mechanical obstruction or stasis is present. Following oral administration, approximately 40% is excreted unchanged in the urine. The remainder is apparently catabolized by various body tissues into inactive, brownish compounds that may tint the urine. Only negligible amounts of the drug are recovered from the feces. Urinary excretion is sufficiently rapid to require administration of the drug at four to six hour intervals to maintain antibacterial concentration. The low oral dosage necessary to maintain an effective urinary concentration is not associated with detectable blood levels. The high solubility of nitrofurantoin, even in acid urine, and the low dosage required diminish the likelihood of crystalluria.

Nitrofurantoin has a low toxicity. With oral administration it occasionally produces nausea and emesis; however, these reactions may be obviated by slight reduction in dosage. An occasional case of sensitization has been noted, consisting of a diffuse erythematous maculopapular eruption of the skin. This has been readily controlled by discontinuing administration of the drug. Animal studies, using large doses administered over a prolonged period, have revealed a decrease in the maturation of spermatozoa, but this effect is reversible following discontinuance of the drug. Until more is known concerning its long-term effects, blood cell studies should be made during therapy. Frequent or prolonged treatment is not advised until the drug has received more widespread study. It is otherwise contraindicated in the presence of anuria, oliguria, or severe renal damage.

Dosage.—Nitrofurantoin is administered orally in an average total daily dosage of 5 to 8 mg. per kilogram (2.2 to 3.6 mg. per pound) of body weight. One-fourth of this amount is administered four times daily—with each meal and with food at bedtime to prevent or minimize nausea. For refractory infections such as Proteus and Pseudomonas species, total daily dosage may be increased to a maximum of 10 mg. per kilogram (4.5 mg. per pound) of body weight. If nausea is severe, the dosage may be reduced. Medication should be continued for at least three days after sterility of the urine is achieved."

MODERN THERAPEUTICS

Pernicious Anemia Improved by B_{12} with Gastric Juice

A 29-year-old woman with classic pernicious anemia in relapse was given a mixture of 100 cc. of gastric juice treated with receptor-destroying enzyme and 10 mcg. of vitamin B_{12} orally for 5 days. An optimum hematological response to this therapy was obtained. Marmion, Gardner, Saint, and Stubbe stated in *The Lancet* [*244*:273(1953)] that although there is good evidence that the intrinsic factor in gastric juice is a mucoprotein, it is not one which is inactivated by receptor-destroying enzyme and is, therefore, different in its properties from gonadotropin and mucoproteins derived from respiratory tract cells. The authors also pointed out that the fact that the intrinsic factor was not destroyed by the enzyme is an indocation that if the intrinsic factor is a mucoprotein, its biological activity is not modified by incubation with the enzyme.

Cortisone and ACTH in Serum Hypersensitivity

Hypersensitivity reactions of the serum-sickness typer were satisfactorily controlled in 24 patients with reactions resulting from penicillin (13), horse serum (8), PAS (1), gold (1), and sulfonamides (1). Control was obtained through the use of ACTH, cortisone, and Compound F acetate. Oral cortisone produced the best response with an initial dose of 100 mg. followed by 50 mg. every 2 to 6 hours in most cases. Effective relief was also obtained with intramuscular injections or intravenous infusions of ACTH, although the latter was less rapid. Satisfactory re-

—Continued on page 72a

Announcing

℞ Rauwiloid + Hexamethonium

for the treatment of severe, intractable hypertension

- Ganglionic blockade made safer through the tranquilizing effect of Rauwiloid...
- Rauwiloid works slowly, takes time to build up. By the time hexamethonium dosage has been determined, Rauwiloid effect will have been established.
- Full hypotensive effect of hexamethonium from greatly reduced dosage (up to one-half less) because of apparently synergistic action with Rauwiloid...
- Side reactions to hexamethonium greatly reduced—in incidence as well as severity—because of lower dosage...
- Combination renders hexamethonium therapy by mouth easier to manage—a distinct advantage when severity and progression of disease demand the most potent agent available.

The inherent dangers of hexamethonium (though greatly reduced because of lower dosage required) call for the same caution, the same diligent supervision, the same careful instruction of the patient, which hexamethonium always demands.

Though the mild hypotensive effect of Rauwiloid is realized slowly, it does not impede the speedy action of hexamethonium.

Associated symptoms of severe hypertension rapidly yield to the Rauwiloid component; tachycardia is relieved by mild bradycardic influence, and gentle sedation changes the usually present anxiety to a feeling of tranquility and well-being.

The concept that it may be "better medicine" to give such potent drugs as hexamethonium individually, and not in combination, does not apply here. Unfortunate mistakes in dosage taken by the patient are less apt to occur when only one tablet-medication has to be taken.

Only the contained hexamethonium need be considered for dosage purposes. Increasing the dosage of Rauwiloid beyond the minimum effective dose will neither lead to excessive hypotensive, bradycardic, or sedative effects, nor produce side actions.

Evidence indicates hexamethonium dosage should be raised slowly. Here is a safe rate of build-up—a uniform, slow, safe rate—with this combination:

Initiate therapy with ½ tablet (each scored tablet contains Rauwiloid 1 mg. and hexamethonium 250 mg.) q.i.d., not less than 4 hours apart, preferably before meals and on retiring. After two weeks, if needed, dosage may be increased by one tablet per day, but not oftener than twice weekly.

Write today for your copy of the new brochure "Rauwiloid + Hexamethonium in the Treatment of Severe, Intractable Hypertension"; it presents a careful review of warning signs in the use of hexamethonium and of the simplification of management made possible by this combination.

RIKER LABORATORIES, INC. 8480 BEVERLY BLVD., LOS ANGELES 48, CALIF.

—Continued from page 70a

sults were also obtained with oral or intramuscular administration of Compound F acetate.

Shulman, Schoenrich, and Harvey reported in *Bull. Johns Hopkins Hosp.* [92:196(1953)] that normally treatment with these drugs is continued for only a short time since the causative drug is usually withdrawn. However, they reported two cases in which it was necessary to continue the administration of the offending drugs. In both of these cases cortisone and ACTH controlled the sensitivity reaction despite the continued administration of the offending drugs.

Effect of Terramycin on Experimental Brucellosis

Guinea pigs were infected with large and small doses of viable cells of both *Brucella abortus* and *Brucella suis*. Therapy with various doses of Terramycin was begun two weeks after the inoculation, and continued daily for a two-week period. Blood cultures and agglutination tests were performed during and after therapy. Autopsy included culturing of organs for organisms.

R. A. Boak, E. L. Nelson, and H. E. Weimer reported before the 53rd General Meeting of the Society of Am. Bacteriologists in San Francisco (Calif.), August 10-14, 1953, that those animals given small with 10 milligrams of Terramycin daily inoculations of organisms and treated showed no evidence of infection. However, animals given large numbers of bacteria and treated similarly appeared cured two weeks after treatment, but again showed extensive signs of the disease six weeks after treatment.

Boric Acid Toxicity in Infants

Boric acid is frequently used in the treatment of ammoniacal dermatitis and perianal dermatitis resulting from contact with diarrheal stools in infants. Two cases were reported by Brooke in *GP* [7:2 (1953)], one of which resulted in death.

—Continued on page 74a

MODERN THERAPEUTICS

—Continued from page 72a

The author pointed out that absorption occurs through macerated skin areas. The boric acid accumulates in the body because of the slow rate of excretion in the urine. Lethal or sublethal accumulation often occurs before symptoms become evident. Diagnosis is made by the appearance of an intense erythema, profuse bloody diarrhea, vomiting and the statement of the mother that a boric acid powder or solution had been used, often without the attending physician's knowledge.

Treatment is supportive since no antidote is known for boric acid poisoning. A severe perianal rash due to frequent loose stool is best treated with gentle washing of the area with boiled water, drying, then the application of an antiseptic protective ointment containing a quaternary ammonium compound such as Diaparene.

Limitations of Cortisone Therapy in Dermatology

The therapeutic effects and the complications which may accompany or follow the administration of cortisone and corticotropin led O'Leary and Erickson to conclude in *J.A.M.A.* [*152*:1695 (1953)] that the indications for the use of these hormones are: self-limited hypersensitivity reactions of severe degree which are unresponsive to more conservative measures, such as, acute urticaria, acute drug reactions, angioneurotic edema, dermatitis venenata, and erythema multiforme; and serious or otherwise fatal conditions such as pemphigus and systemic lupus erythematosus.

Temporary benefit may be obtained in neurodermatitis, dermatomyositis, psoriasis, and seborrheic dermatitis, but relapses are frequent and are usually more

—Continued on page 78a

Iron without irritation *plus*

FULL HEMATINIC

full
formulas

full
dosage

full
response . . .

PROTECTION

for common anemias and nutritional deficiencies

Fully essential antianemic and nutritive factors enrich the Fergon full formulas promoting full hematologic and fuller clinical response.

prescribe:

FERGON PLUS *Capsules*

FERGON COMPOUND *Elixir*

Iron without irritation in the form of better tolerated ferrous *gluconate*.[1,2]

B_{12}, *the chief liver principle*,[3] together with folic acid,[4] an indispensable constituent of tissues.[5]

Vitamin C to help absorb iron.[6]

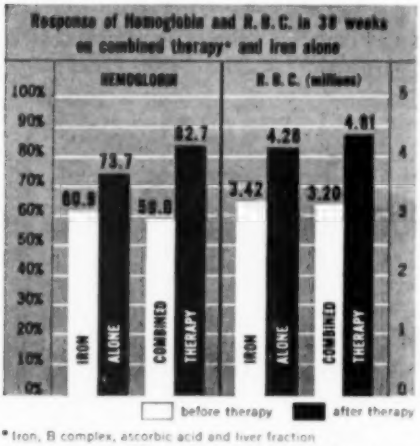
Liver for its unidentified hematinic and nutritive factors.[6]

Gastric mucosa to activate oral B_{12}.[7]

B complex for more complete hematopoiesis.[8]

Start at full tilt. For prompt response, give Fergon Plus Capsules or Fergon Compound Elixir in *large doses* from the very beginning.

Quicker, greater increases on combined therapy than on iron alone



* Iron, B complex, ascorbic acid and liver fraction

Adopted from Roth, M. M.: *Med. Times*, 79:617, Oct. 1951.

Therapeutic: (1) Common iron-deficiency anemias. (2) Megaloblastic anemias of pregnancy, infancy and tapeworm, nutritional macrocytic anemia and anemias of total gastrectomy, intestinal stricture and steatorrhea. (3) Nutritional deficiencies.

Prophylactic: (1) Pregnancy and lactation. (2) Convalescence. (3) Geriatric therapy. (4) Preoperatively and postoperatively and during prolonged illness. (5) As a nutritive supplement.

DOSAGE: FERGON PLUS CAPSULES: *Therapeutic:* 2 or 3 capsules 3 times daily. FERGON COMPOUND ELIXIR: *As hematinic:* Adults, 1 or 2 teaspoonfuls 3 times daily with water.

References: **1.** Arrowsmith, W. R.: *New Orleans Med. & Surg. Jour.*, 102:435, Mar., 1950. **2.** Reznikoff, Paul, and Goebel, W. F.: *Jour. Clin. Investigation*, 16:547, July, 1937. **3.** Horrigan, Daniel, Jarrold, Thomas, and Vilter, R. W.: *Jour. Clin. Investigation*, 30:31, Jan., 1951. **4.** Spies, T. D., et al.: *Postgrad. Med.*, 10:269, Oct., 1951. **5.** Editorial: *J. A. M. A.*, 142:904, Mar. 25, 1950. **6.** Gottlieb, B.: *Brit. Med. Jour.*, 2:119, July 28, 1945. **7.** Hall, B. E., Morgan, E. H., and Campbell, D. C.: *Proc. Staff Meet., Mayo Clin.*, 24:99, Feb. 16, 1949. **8.** Wintrobe, M. M.: Clinical Hematology. Philadelphia, Lea & Febiger, 3d ed., 1951, p. 128.

FERGON® PLUS *Capsules*

FERGON COMPOUND *Elixir*

WINTHROP *Winthrop-Stearns* INC., New York 18, N. Y. Windsor, Ont.

—Continued from page 74a

severe than the original condition. The early enthusiasm for cortisone and corticotropin in dermatological conditions has waned considerably, and the authors cautioned against their unnecessary use.

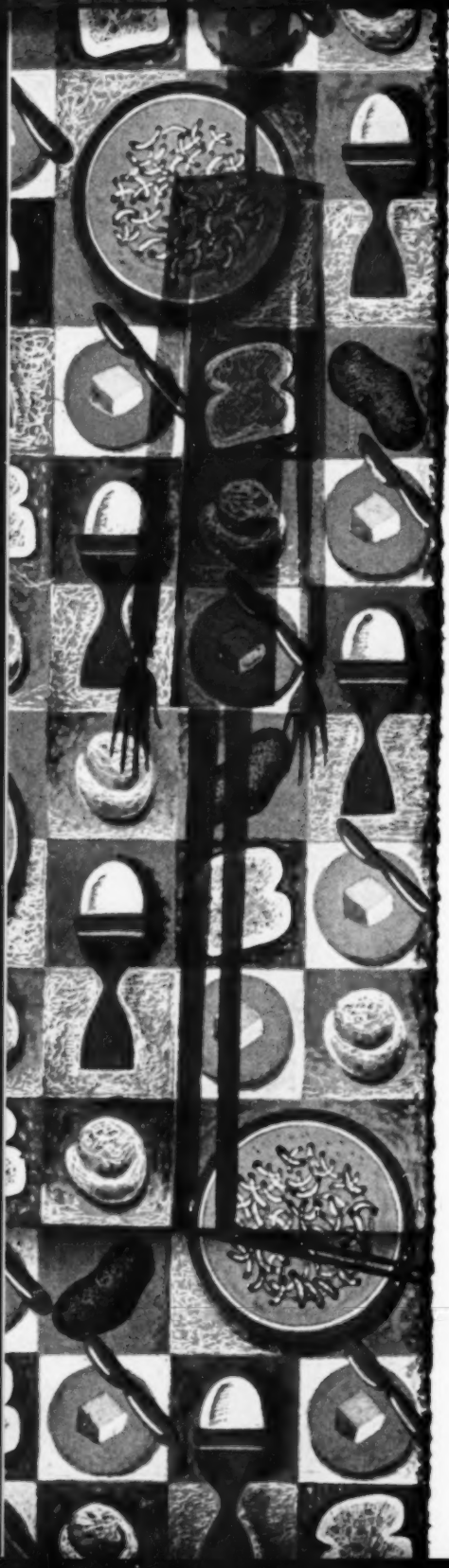
Effect of Environment on Bacterial Resistance to Antibiotics

The emergence of resistance of bacteria to antibiotics has been shown to be a matter of selection; the resistant strains survive and develop while the susceptible strains die. J. Smolens and A. B. Vogt reported before the 53rd General Meeting of the Soc. of Am. Bacteriologists in San Francisco (Calif.), August 10-14, 1953, that they had found that environmental conditions apparently produced a difference in the bacteria itself as to resistance. For example, they found that *Micrococcue pyogenes* var. *aureus* was 100 per cent resistant to streptomycin when grown on a modified Cohen-Wheeler medium but only a few were resistant on Bordet-Gengou medium. A single subculture of the bacteria from one medium to the other causes an immediate reversal of resistance. Controls showed that this was due to a change in the bacteria themselves and not to neutralization of the antibiotic by some substance in the medium.

Use of Octamethyl Pyrophosphoramide in Myasthenia Gravis

Octamethyl pyrophosphoramide (OMPA) is a new organic phosphorus anticholinesterase agent used in the treatment of myasthenia gravis. OMPA has an advantage over other similar compounds in that its muscarinic side effects are much more easily controlled with atropine. However, this becomes a disadvantage also, for an increase in dosage does

—Continued on page 80a



for caloric boost
without gastric burden
...when weight gain
is the objective

EDIOL

TRADEMARK

[ORAL FAT EMULSION SCHENLEY]

Just 2 tablespoonfuls of EDIOL* oral fat emulsion q.i.d. add 600 extra calories to the daily diet without increasing bulk intake or blunting the appetite for essential foods. This EDIOL regimen is the caloric equivalent of:

6 servings of macaroni and cheese, or
1 dozen Parker House rolls, or
12 pats of butter, or
8 boiled eggs, or
6 baked potatoes, or
9½ slices of bread

EDIOL is an exceptionally palatable, creamy emulsion of vegetable oil (50%) and sucrose (12½%). The unusually fine particle size of EDIOL (average, 1 micron) favors ease of digestion, rapid assimilation. For children, or when fat tolerance is a problem, small initial dosage may be prescribed, then increased to the level of individual tolerance.

Available through all pharmacies, in bottles of 16 fl.oz.

schenley

SCHENLEY LABORATORIES, INC.
LAWRENCEBURG, INDIANA

—Continued from page 78a

not increase the amount of atrophine required. It is known that an irreversible esterase inhibitor in myasthenic patients leads to paralysis beyond a certain critical dose level. Thus, without increased muscarinic effects as a warning it is difficult to know whether or not an increase in weakness in a patient is an indication of the need for more OMPA or that a toxic level has been reached. This toxic weakness often progresses to fatal, generalized paralysis.

Writing in *J.A.M.A.* [*152*:1707(1953)] Schulman, Rider and Richter pointed out that although OMPA has a more prolonged action than neostigmine and a slower onset this is a disadvantage in cases of myasthenic crisis.

The authors pointed out that the patient and the dosage must be very carefully watched. They recommended as small a dose as possible but one not exceeding 30 mg. a day.

Aureomycin Clears Actinomycosis Infections

Aureomycin was effective in clearing 7 cases of actinomycosis, according to McVay and Sprunt in *Ann. Int. Med.* [*38*:955(1953)]. Five of the cases had been observed for 2 years following treatment. They also found that aureomycin exerted a definite inhibitory effect on *Actinomyces bovis in virto*. They, thus, concluded that aureomycin shows promise of being an effective therapeutic agent in both localized and disseminated actinomycosis. The authors also warned that this disease is being found with increasing frequency and that it should be considered in the differential diagnosis of all subacute and chronic inflammations in which the causative agent is not readily obvious.

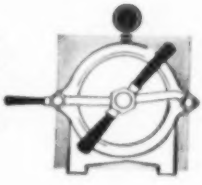
—Concluded on page 84a

New improved ANACAP®

SURGICAL SILK

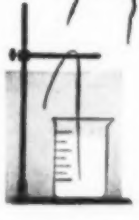
5 *ways better than ever before*

1 *Greater tensile strength:* One of the strongest silks ever created — smaller diameter sizes can be used everywhere to minimize trauma and foreign body reaction.



2 *Withstands repeated sterilization:* New Anacap Silk can be boiled or autoclaved ***six separate times*** without appreciable change in either strength or texture. In laboratory tests almost the full original strength is maintained even after 23½ hours of boiling.

3 *Easier to handle:* Firmer, not limp, Anacap Silk speeds operative technic. Braided by a new method that minimizes "splintering" and "whiskering" it passes readily through tissues. The ease of handling Anacap makes it a "new experience" in silk suturing.



4 *Absolute non-capillarity:* Having no wick-like action, new Anacap Silk is resistant to body fluids and will not spread an early localized infection if it occurs.

5 *Doubly economical:* Low in original purchase price, new Anacap Silk is also low in individual suture cost because of its long sterilization life.

In sizes 6-0 to 5 on spools of 25 and 100 yards; sterile in tubes with and without D & G Atraumatic® needles attached.

DAVIS & GECK, INC.

57 Willoughby Street D&G® *Brooklyn, 1, N. Y.*

MODERN THERAPEUTICS

—Concluded from page 80a

Adenoisine-5-Monophosphate in Multiple Sclerosis

Injections of adenosine-5-monophosphate (My-B-Den) in varying dosages over a period of 6 to 10 months produced an 86 per cent improvement in endurance and a 72 per cent amelioration of bladder disabilities in 16 patients with multiple sclerosis. Incoordination, visual disturbances, spasticity, sexual weakness, and paresthesias were not helped by the drug.

Doses of 100 mg. in aqueous solution 3 times a week were found to be preferable to 20 mg. in gelatin. No local nor systemic toxicity was encountered.

Lowry, Moore, and Calliet reported in *Am. J. Med. Sci.* [*226*:73(1953)] that it is possible that multiple sclerosis is a disease involving carbohydrate metabolism with a block at the pyruvic acid-lactic acid level, for it has been found that pyruvic acid is often disproportionately increased over the normal pyruvic acid-lactic acid blood ratio. Adenosine-5-monophosphate seems to bring the ratio back more nearly to normal.

Diagnosis, Please!

ANSWER
(from page 27a)

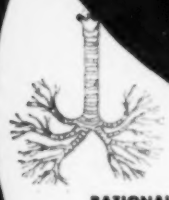
PAGET'S DISEASE

Because the skull shows marked thickening of the diploic layer which contains incompletely ossified areas of osteoid tissue characteristic of this condition.

rational... effective... proven,
in cough control...

Robitussin®

Robins



RATIONAL— employs in each 5 cc. of aromatic syrup vehicle: glyceryl guaiacolate 100 mg. (unexcelled for increasing respiratory tract fluid), and desoxyephedrine 1 mg. (relieves bronchiolar constriction and improves patient's mood).

EFFECTIVE — stimulates maximum removal of sputum, with least frequent and least taxing cough.

PROVEN— as reported in clinical test: "[Robitussin] was significantly superior to the other preparations studied."*

*Cass, L. J. and Frederik, W. S.: Amer. Pract. and Dig. of Treat., 2:844, 1951. (In this study Robitussin was compared with ammonium chloride and terpin hydrate.)

A. H. ROBINS CO., INC.

Ethical Pharmaceuticals of Merit since 1878

RICHMOND 20, VIRGINIA

A. H. ROBINS CO., INC. 75th ANNIVERSARY

NEWS AND NOTES

Music Proved a Therapeutic Aid

Music soothes the savage beast — and aids in the treatment of ill persons.

"In acutely ill patients music often produces effects of sedation and reassurance, while in chronically ill patients music is able to divert the mind during long periods of convalescence and enforced rest," it was stated editorially in the *Journal of the American Medical Association*.

"Patients with tuberculosis, rheumatic fever, malignant tumors, neurological diseases, orthopedic disorders and many other chronic ailments frequently discover that music helps while away tedious hours and removes flights of the imagination to more pleasant and relaxing spheres of thought. This can be accomplished with the aid of background music, records, books, musical instruments and singing.

"Since almost all children enjoy music that is tuneful, accompanied by simple words, and that relates a story, music is especially applicable as a therapeutic modality for the juvenile audience. It is useful as a vehicle accompanying games, and it also provides a pleasant distraction from the disturbing cries that invade pediatric wards of hospitals. It is of particular value to chronically ill children who are required to stay in bed for long periods of time."

Music is a useful adjunct to physical therapy, the editorial pointed out. Mentally defective persons are more easily handled when soothing, rhythmic music is performed, and it has been found in dentistry that music allays anxiety, raises the pain threshold, and improves the doctor-

—Continued on page 88a

PROTAMIDE

FOR THE PATIENT SEEKING RELIEF FROM NERVE ROOT PAIN

WHEN the disturbing and painful symptoms of herpes zoster, or the stinging distress of neuritis brings the patient to you, quick relief is expected. Protamide helps solve this therapeutic problem by providing prompt and lasting relief in most cases. This has been established by published clinical studies, and on the valid test of patient-response to Protamide therapy in daily practice.

NEURITIS (Sciatic—Intercostal—Facial)

In a recent study* of 104 patients, complete relief was obtained in 80.7% with Protamide. 49 were discharged as cured after 5 days of therapy with no subsequent relapse. (Without Protamide, the usual course of the type of neuritis in this series has been found to be three weeks to over two months.)

Dosage: one 1.3 cc. ampul intramuscularly, daily for five to ten days.

HERPES ZOSTER

A study* of fifty patients with Protamide therapy resulted in excellent or satisfactory response in 78%. (No patient who made a satisfactory recovery suffered from postherpetic neuralgia.) Thirty-one cases of herpes zoster were treated with Protamide in another study.* Good to excellent results were obtained in 28.

Dosage: one 1.3 cc. ampul intramuscularly, daily for one to four or more days.

* *A folio of reprints of these studies will be sent on request.*

SHERMAN LABORATORIES
BIOLOGICALS • PHARMACEUTICALS
WINDSOR DETROIT 15, MICH. LOS ANGELES

—Continued from page 86a

patient relationship. Some obstetricians use music to allay anxiety and raise the pain threshold during arduous hours spent by patients in the labor room.

It also has been observed that music in the operating room serves as a beneficial adjunct to the administration of local, regional, or spinal anesthesia, and that it diminishes apprehension in patients.

Tell of Dangers in Fish Lens Protein Use in Cataract Therapy

Danger in the use of fish lens protein in the treatment of cataracts was pointed out in a recent *A.M.A. Jour.*

Warnings were sounded in a special report by the division of medical sciences of the National Research Council, and in a report of a New York ophthalmologist.

Widespread interest in the nonsurgical treatment of cataracts with injections of fish lens protein was shown after publication of an article on alleged benefits, which appeared last September in a scientific weekly *(Science)*.

The principal author was R. F. Shropshire, an ex-convict who has posed as a doctor of medicine. Shropshire, according to latest authentic information, is being held in Florida State Prison at Raiford for a hearing on alleged violation of parole. He had been sentenced, after pleas of guilty, to two consecutive five-year terms for forging prescriptions for narcotics.

Cataract Institute, Inc., was formed in New York. A clinic was established at South Kortright, N. Y., last January. The Drake Hotel at Stamford-in-the-Catskills, N. Y., was converted into a special residence to accommodate patients and guests coming to the cataract clinic for treatment.

In view of the interest displayed by the

—Continued on page 90a

Vallestril is highly effective in:

Suppressing specific
pituitary function
lactation
ovulation

Suppressing menopausal symptoms . . .

Cornification of vaginal mucosa . . .

Control of symptoms of osteoporosis . . .

Vallestril achieves relative avoidance of:

. . . Nausea

. . . Mastalgia

. . . Withdrawal bleeding

Vallestril* *has "target action"*

It provides potent estrogenic activity *only in certain organs*, thus minimizing or completely obviating the well-known disadvantages of previously available estrogens. These disadvantages are the high incidence of withdrawal bleeding, nausea, edema in the female and mastalgia and gynecomastia in the male.

Vallestril has been shown[1-5] to be more active than estradiol and to have twice the potency of estrone[6] *on the vaginal mucosa* when measured by the Allen-Doisy technic. However, Vallestril has been shown to have but one-tenth the activity of estrone *on the uterus* by the Rubin technic—a suggested explanation of its very low incidence of withdrawal bleeding.

Vallestril "quickly controls[7] menopausal symptoms, as well as the pain of postmenopausal osteoporosis and of the osseous metastases of prostatic cancer. The beneficial effect of the medication appeared within three or four days in most menopausal patients. There is also evidence that the patient can be maintained in an asymptomatic state by a small daily dose, once the menopausal symptoms are controlled."

Dosage: Menopause—3 mg. (1 tablet) two or three times daily for two or three weeks, followed by 1 tablet daily for an additional month.

Supplied in 3-mg. scored tablets.

Bibliography: Complete list of references available on request. *Trademark of G. D. Searle & Co.

SEARLE RESEARCH IN THE SERVICE OF MEDICINE

NEWS AND NOTES

—Continued from page 88a

public, the Council of the American Academy of Ophthalmology and Otolaryngology asked the National Research Council to make an investigation of the authors' claims. The research council's committee on ophthalmology was assigned the study.

The National Research Council's report said, in part:

"In summary, the committee found nothing in the theoretical background or in the experimental and clinical results of this therapy to recommend it. It did, however, find evidence that the treatment might seriously interfere with the subsequent surgical removal of the cataracts that it had failed to cure.

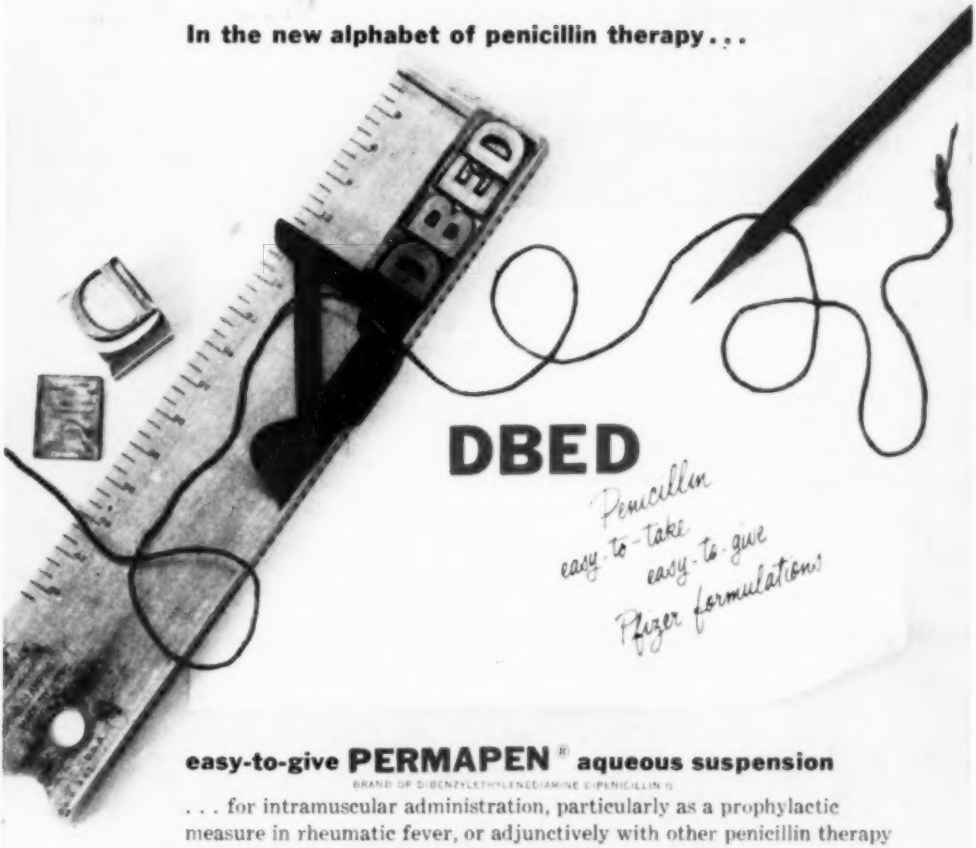
"Because of the total lack of evidence that the lens antigen treatment of cataract described by Mr. R. F. Shropshire has any efficacy; because adequate evidence is now available to the committee that it is, in fact, without demonstrable efficacy; and because treatments of this type have been thoroughly investigated in the past and proved not only invalid but potentially dangerous to the patient, this committee does not recommend further investigation of this treatment by any agency."

Dr. Goodwin M. Breinin of the department of ophthalmology, New York University Post-graduate Medical School, in a recent *Journal of the A.M.A.* reported three cases in which the fish lens protein was used. He concluded:

"Promiscuous use of fish lens protein in the therapy of cataract is a dangerous procedure that may induce a state of hypersensitivity. This may be manifested in the development of uveitis (inflammation of the iris) due to an antigen-antibody reaction with the patient's own lens, and secondary glaucoma may also occur. Rapid maturation of cataracts has occurred during fish lens protein treatment."

—Continued on page 92a

In the new alphabet of penicillin therapy . . .



DBED

Penicillin
easy-to-take
easy-to-give
Pfizer formulations

easy-to-give PERMAPEN® aqueous suspension

BRAND OF DIBENZYLETHYLENEDIAMINE DIPENICILLIN G

. . . for intramuscular administration, particularly as a prophylactic measure in rheumatic fever, or adjunctively with other penicillin therapy of sensitive infections. Levels lasting as long as 14 days from one injection. Supplied in single-dose STERAJECT® disposable cartridges containing 600,000 units of DBED penicillin each with sterile foil-wrapped needle. For use with your Pfizer Steraject syringe.

PERMAPEN® FORTIFIED

BRAND OF DIBENZYLETHYLENEDIAMINE DIPENICILLIN G

aqueous suspension

. . . multiplies therapeutic benefits with the combined higher blood levels of 300,000 units procaine penicillin and the sustained blood levels of 300,000 units DBED penicillin. Supplied in single-dose disposable STERAJECT cartridges each with sterile foil-wrapped needle.

easy-to-take PERMAPEN® oral suspension

BRAND OF DIBENZYLETHYLENEDIAMINE DIPENICILLIN G

. . . particularly for the treatment of uncomplicated infections due to pneumococci, streptococci, staphylococci and gonococcus as well as other penicillin-sensitive organisms. Supplied in 2 oz. bottles providing 300,000 units DBED penicillin in each peach-flavored teaspoonful.

Pfizer PFIZER LABORATORIES, BROOKLYN 6, N. Y.
DIVISION, CHAS. PFIZER & CO., INC.

—Continued from page 90a

Newer Developments in Diagnosis and Therapy of Carcinoma of the Colon and Rectum in 1953

E. J. Halligan at the 1953 Convention of the International Academy of Proctology emphasized the importance of early diagnosis in the improvement of results in carcinoma of the colon and rectum. Not only should the laity be educated to seek medical advice if they notice any change in bowel habit, abdominal discomfort, or the passage of blood or mucus in the stools, but physicians must also be impressed with the importance of a complete physical examination including sigmoidoscopic examination in patients with such suspicious symptoms, with hemorrhoids, fissures or cryptitis. In some cases where a lesion higher up in the colon is suspected, x-ray examination with a barium enema is indicated. Polyps are frequently pre-malignant, or actually malignant, at the time of examination, and as these growths are usually multiple, a careful study of the entire colon should be made. Biopsy is indicated in lesions in the rectum or in the lower colon where the growth is accessible with the sigmoidoscope. In improving the results of operation for cancer of the colon and rectum, the modern methods of pre-operative treatment are of importance, especially the control of fluid and electrolyte balance and dietary deficiencies, and the prevention of infection by the use of antibiotics and the sulfonamides, as indicated; various combinations of these drugs are often employed. Vitamin K is also given, as in destroying the

—Continued on page 94a

DEPENDABLE . . . UNIFORMLY SHARP . . . ENDURING CUTTING EDGES

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Any way you look at it . . . performance-proved B-P RIB-BACK SURGICAL BLADES contribute to the certainty of the surgeon's touch, as they provide him with dependable, uniformly sharp and enduring cutting edges.

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BARD-PARKER COMPANY, INC.
Danbury • Connecticut

And Rib-Backs packaged in the new RACK-PACK provide further *economies* in time and labor for the O. R. Personnel. Blades from RACK-PACK to sterilizer in *a matter of seconds.*

It's Sharp

S-79

NEWS AND NOTES

—Continued from page 92a

intestinal organisms the enzymes that produce vitamin K may also be destroyed. More radical operations have recently been employed in cancer of the colon; the procedure of choice is resection with immediate anastomosis; new radical techniques have been developed especially for cancer of the left colon making it possible to perform a left hemicolectomy with anastomosis of the transverse colon to the rectum or sigmoid. Anterior resection for carcinoma of the rectum is done only when the growth is above the 15 cm. mark from the anal mucocutaneous junction, i.e., above the rectosigmoid; for growths below the rectosigmoid only if the patient refuses a colostomy or there is little local involvement, but involvement of the liver. In the post-operative period, the maintenance of fluid and electrolyte balance is maintained, as in the pre-operative period, the indwelling tube is used for decompression, and the sulfonamides and antibiotics are given as indicated. Another important factor in postoperative treatment is early ambulation, which is of value in the prevention of postoperative complications. A two-stage operation is done in cases of obstruction, and in some cases in elderly patients in poor physical condition. Determination of the prothrombin time before and after operation and the administration of anti-coagulants if the prothrombin time increase is of value in the prevention of postoperative thrombosis, and embolism, especially in older patients with cancer, fracture, or prostatic disease.

Appointment

Dr. Henry W. Kumm of Chocorua, N.H., and N.Y.C., has been appointed director of research of the National Foundation for Infantile Paralysis, it was announced by Basil O'Connor, president.

—Continued on page 96a

when nutritional reinforcement is necessary...

Today, the concept of interrelationship in nutrition is widely recognized. For this reason, when special restrictive diets are prescribed, the physician will usually tend to supplement dietary intake with the most complete vitamin-mineral formulation available. "Clusivol" is an ideal preparation for such therapy.

REDUCING DIETS
DIABETIC DIETS
GERIATRIC DIETS
POSTOPERATIVE DIETS
PEPTIC ULCER DIETS
LOW SODIUM DIETS
HEPATIC DISEASE DIETS
RHEUMATIC FEVER DIETS

2 "Clusivol" Capsules (average daily dosage) provide:

Vitamin A (synthetic)	25,000 U.S.P. Units
Vitamin D (irradiated ergosterol)	2,000 U.S.P. Units
Vitamin C (ascorbic acid)	150.0 mg.
Thiamine HCl (B_1)	10.0 mg.
Riboflavin (B_2)	5.0 mg.
Pyridoxine HCl (B_6)	1.0 mg.
Panthenol, equivalent to of calcium pantothenate	10.0 mg.
Vitamin B_{12} U.S.P. (crystalline)	2.0 mcg.
Folic acid	2.0 mg.
Nicotinamide	100.0 mg.
Vitamin E (as mixed tocopherols natural)	10.0 mg.
Inositol	30.0 mg.
Choline—from choline bitartrate	30.0 mg.
Biotin	0.1 mg.
d-Methionine	20.0 mg.
Cobalt—from cobalt sulfate	0.1 mg.
Copper—from copper sulfate	1.0 mg.
Fluorine—from calcium fluoride	0.025 mg.
Iron—from 4 gr. ferrous sulfate exsic.	76.2 mg.
Calcium—from dicalcium phosphate	165.0 mg.
Manganese—from manganous sulfate	1.0 mg.
Iodine—from potassium iodide	0.15 mg.
Molybdenum—from sodium molybdate	0.2 mg.
Potassium—from potassium sulfate	5.0 mg.
Zinc—from zinc sulfate	1.2 mg.
Magnesium—from magnesium sulfate	6.0 mg.
Phosphorus—from dicalcium phosphate	127.4 mg.

"CLUSIVOL"® **CAPSULES**

Multiple vitamin-mineral supplement

No. 293—Supplied in bottles of 100 and 1,000.

Ayerst, McKenna & Harrison Limited
New York, N. Y. • Montreal, Canada

NEWS AND NOTES

—Continued from page 94a

Dr. Kumm, who had spent 23 years on the staff of the Rockefeller Foundation for Medical Research before joining the Village, N. Y., who has resigned.
National Foundation in July, 1951, replaces Dr. Harry M. Weaver of Bedford

He is a member of the American Medical Association, the Medical Societies of the County of New York and the State of New York, the American Association for the Advancement of Science, the American Society of Tropical Medicine and Hygiene and the Royal Society of Tropical Medicine and Hygiene of England.

He is the author of some 50 papers on tropical medicine and poliomyelitis.

Tattooing Used to Camouflage Birthmarks on Face and Neck

Tattooing, a practice which has been traced back as far as 2000 B.C. in Egypt, is being used effectively to permanently camouflage deep-seated, port-wine stain birthmarks, according to Dr. Herbert Conway, New York plastic surgeon.

Nevus flammeus, the medical terminology for the stain, is caused by abnormal capillary dilations which impart the characteristic red or purple color to the birthmark. The stain frequently covers a large portion of the face or neck and often has been of such psychological importance to the afflicted person as to have adverse effects on his personality and social adjustment.

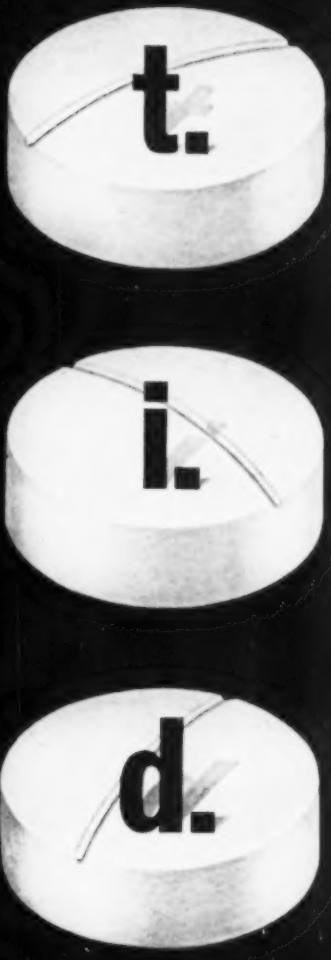
Dr. Conway, associated with the New York Hospital-Cornell Medical Center, described the tattooing procedure in *Journal of the American Medical Association*.

An 83 per cent rate of satisfactory results has been obtained by the technique in cases where the dilated blood vessels lie beneath the dermis (inner true skin), or in the deeper portion of the dermis itself. Where the abnormal capillaries

—Continued on page 98a

1st choice for oral penicillin therapy

just 1 or 2 tablets



Pentids

Squibb 200,000 Unit Penicillin G Potassium Tablets

SQUIBB

"PENTIDS" IS A TRADEMARK

NEWS AND NOTES

—Continued from page 98

are immediately beneath the epidermis (outer layer of the skin), the procedure is unsatisfactory. The technique involves the injection of pigment of natural skin color into the dermis to hide the stain.

"The pigment must be deposited in the dermis if it is to remain permanently," Dr. Conway explained. "Experience has shown, however, that a high percentage of these nevi fall into the classification in which tatooing achieved the desired results."

The pigments, insoluble, are mixed into a thick paste with sterile water and placed by brush onto the skin and into the open end of the barrel of the instrument containing the needle. The needle's oscillations are regulated by a foot pedal, usually at a rate of from 3,000 to 3,500 movements per minute.

The particles of pigment are deposited at varying depths in the dermis. A set screw regulates the depth of penetration.

"There need be no hesitancy in tattooing directly into the eyebrow or temporal hair line."

The first treatment is applied over a small area, a record being kept of the combination of colors, he said. The final effect cannot be evaluated until three or four weeks later.

"Once the combination of pigments best suited to the patient has been determined, treatments are given at intervals of four weeks until the entire lesion has been tattooed," Dr. Conway said. "An area of from 4 to 5 square inches may be treated in one hour by a skilled technician."

Lesions covering about one-half of the face often required from 12 to 20 treatments, he pointed out. Seven patients in whom port-wine stains covered large areas of both sides of the face required more than 20 treatments. In one case, 27 treatments were required.

—Continued on page 102a

In infectious and allergic rhinitis and sinusitis

Biomydrin "is effective as an antibiotic in clearing the nose of pathogenic organisms and purulent secretions. In many cases, sterile cultures were obtained after a brief period of treatment."

Antibiotics & Chemotherapy *3*:299 (March) 1953.

Improvement in 113 of 124 Patients*

Diagnosis	Number of patients	Improved
Chronic catarrhal rhinitis	11	11
Chronic allergic rhinitis	26	25
Right maxillary sinusitis	2	1
Chronic naso-pharyngeal catarrh	6	6
Chronic suppurative sinusitis	3	3
Coryza, Head cold, Catarrhal rhinitis	58	51
Influenza	2	1
Acute catarrh	4	3
Hypertrophic rhinitis	12	12
TOTAL	124	113 (91.1%)

* Eye, Ear, Nose and Throat Monthly *42*:512 (Sept.) 1953.

The Biomydrin formula

THONZONIUM BROMIDE 0.05%. Synthesized in the Nepera laboratories. Exceedingly potent antibacterial. Greatly enhances the antibiotic activity of neomycin and gramicidin. Reduces surface tension, facilitating spreading and penetrating. Mucolytic.

NEOMYCIN SULFATE 0.1%. Effective against gram-positive and gram-negative organisms.

GRAMICIDIN 0.005%. Effective against gram-positive organisms.

PHENYLEPHRINE HCl 0.25%. Widely preferred vasoconstrictor.

THONZYLAMINE HCl 1.0%. *Therapeutic concentration* of this effective antihistaminic aids in controlling local allergic manifestations.

- Prompt, prolonged shrinkage of nasal mucosa without secondary congestion.
- pH is 6.2. Isotonic and buffered.
- Does not interfere with ciliary activity.
- Spray covers larger area than could be reached by drops.
- Available on prescription only.

DOSAGE: Adults 2 or 3 sprays in each nostril; 4 or 5 times a day as needed, or as directed by physician. Children 1 or 2 sprays in each nostril; 4 or 5 times a day as needed, or as directed by physician.

BIOMYDRIN

Nepera Chemical Co., Inc. Pharmaceutical Manufacturers, Yonkers 2, N. Y.

WHAT ABOUT TOMORROW?

WHAT A LAXATIVE accomplishes today, it may undo tomorrow. The unphysiologic action of "sweeping out the bowel" creates a condition where "normal bowel movement cannot occur for perhaps two or more days after such an insult."[1]

Phenolphthalein is a notable exception to this rule. It gently stimulates peristalsis "to produce a stool very much like the normal."[2] There is no harsh and excessive initial action that may leave the intestinal tract completely depleted. Therapeutic doses "soften and regulate the stools for several days."[3] According to Grollman, phenolphthalein "acts for several days as a mild aperient, but as it is gradually eliminated . . . the action passes off."[4] This continued action in a gradually decreasing measure enables the colon to regain its normal tone and to resume its functioning unaided by further laxative medication.

These therapeutic properties make phenolphthalein the laxative of choice not only in the relief of occasional or temporary constipation but also for the more prolonged treatment of habitual or chronic intestinal stasis. It makes it possible to reduce the frequency of medication, and does not create the necessity of contending with the troublesome after-effect of secondary constipation.

Research studies in recent years have definitely established that phenolphthalein is free from other side effects. There is no irritation of the kidney,[5] no undue irritation of the intestinal tract or other organs.[6,7] Furthermore, phenolphthalein may be taken during lactation because it does not appear in a free state in the mother's milk and no action is exerted on the nursing infant.[8]

With Ex-Lax the treatment is further simplified and improved. The phenolphthalein used in Ex-Lax is biologically standardized for uniform action. The pleasing taste imparted by its chocolated base makes Ex-Lax easy to take and proves to be of special advantage when palatability demands particular consideration, as during pregnancy and in administration to children. When Ex-Lax is used during the day, it causes no sudden embarrassing urgency; taken at bedtime, sleep is not disturbed.

With a background of nearly a half century of usefulness, Ex-Lax has achieved an outstanding place in meeting the demands of modern therapeutics. It is used by an ever increasing number of physicians because of its effectiveness, its palatability, its wide range of safe dosage, making it suitable for all ages, under practically all conditions when a laxative is indicated.

A professional trial supply of Ex-Lax, and a physician's pocket notebook, bound in leather and containing medical reference information, will be gladly sent to physicians.

Ex-Lax, Inc., Brooklyn 17, New York

1. P. W. Brown: Current Therapy 1952, W. B. Saunders Co.; page 203.
2. H. Beckman: Pharmacology in Clinical Practice, W. B. Saunders Co., 1952; page 369.
3. T. Sollmann: A Manual of Pharmacology, W. B. Saunders Co., 1948; page 177.
4. A. Grollman: Pharmacology and Therapeutics, Lea & Febiger, 1951; page 391.
5. B. Fantus and J. M. Dyniewicz: J.A.M.A. 108:439, Feb. 6, 1937.
6. B. Fantus, F. Steigmann, and J. M. Dyniewicz: Am. J. Digest. Dis. 8:176, May, 1941.
7. P. Blick, J. A. Berardi, and O. Wozasek: Am. J. Digest. Dis. 9:292, Sept., 1942.
8. N. T. Kwit and R. A. Hatcher: Am. J. Dis. Child., 49:900, 1935.

NEWS AND NOTES

—Continued from page 98a

"The procedure is attended by only slight discomfort, which the average adult patient tolerates without anesthesia," Dr. Conway reported. The comfort of the patient may be promoted by the mixing of the powdered pigments with solution of procaine (novocaine) hydrochloride.

"Children usually require local anesthesia. Treatment is delayed until the age of eight years if possible, as general anesthesia (ether) is necessary in younger children. In patients in whom general anesthesia has been necessary the interval between treatments has been increased to three months, to prevent development of complications of anesthesia or undue aversion to the induction of anesthesia in the child."

Of 310 persons who applied for treatment in seven years, 47 (15 per cent) were rejected because biopsy or trial treatment showed the lesion was subepidermal, Dr. Conway reported. Of the 263 patients who were treated, 84 were males and 179 were females. At the time of the making of the report, 192 had completed treatment. In 159 cases (83 per cent), the results were satisfactory, he said. Thirty-three patients (17 per cent) expressed dissatisfaction or disappointment with the results.

Find One Out of Four House Calls by Doctor Unnecessary

In one out of four cases, a request to a physician to make a house call is unwarranted because the patient is able to visit the doctor's office. Two out of three such calls are to treat women.

This conclusion was reached by three Decatur (Ill.) physicians following a two and one-half year study of 1,000 consecutive residence visits made by them. The physicians are Drs. William T. Couter, Alvin T. Held and Charles L. York.

—Concluded on page 106a

"Beauty is only skin deep"

RIASOL

acts "skin deep" in PSORIASIS

Granted that beauty is only skin deep, the depth of the skin can be very important. In the treatment of psoriasis, for instance, agents that act merely on the surface have very little therapeutic value.

The penetrating saponaceous vehicle of RIASOL carries the active ingredients below the surface, brings them in actual contact with the deeper epidermal layers. Here is where the lesions of psoriasis originate.

The deep alterative action of RIASOL accounts for results unequaled by many other medications. In a series of severe cases which had failed to respond to previous therapies, the psoriatic patches cleared or were greatly improved by RIASOL in 76% of all cases; the lesions cleared in an average of 8 weeks; and remissions were greatly reduced.

RIASOL contains 0.45% mercury chemically combined with soaps, 0.5% phenol and 0.75% cresol in a washable, nonstaining odorless vehicle.

Apply daily after a mild soap bath and thorough drying. A thin invisible, economical film suffices. No bandages required. After one week, adjust to patient's progress.

Ethically promoted RIASOL is supplied in 4 and 8 fld. oz. bottles at pharmacies or direct.

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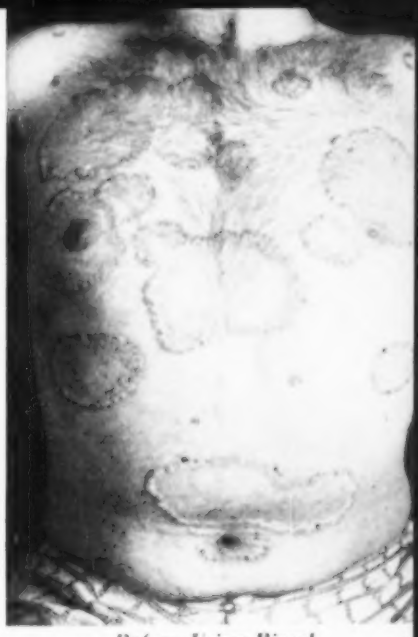
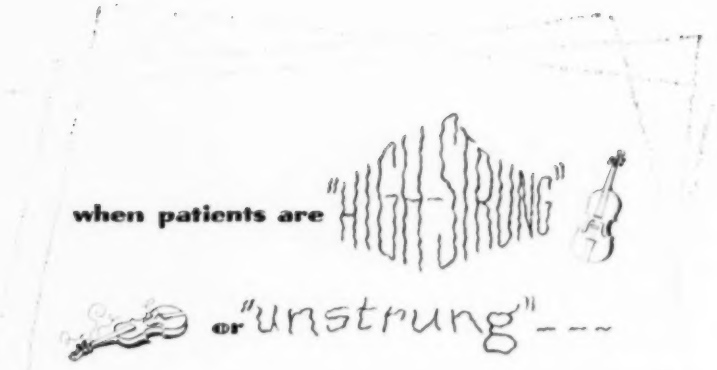


Before Using Riasol

After Using Riasol

RIASOL for PSORIASIS



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Mephenesin	250.0 mg.
d-Amphetamine phosphate (dibasic)	2.5 mg.
Butabarbital	8.0 mg.

Bottles of 50, 100, and 1000 tablets.
Elixir: Bottles of 8 oz.

TRIPLE-ACTING to produce neuromuscular relaxation and promote tranquility, thus breaking the chain of fatigue, aches and pains, depression, and the numerous other symptoms associated with tension.

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OFF TO A GOOD START

"...if the pregnant woman receives sufficient prenatal care including an adequate diet, her baby is much more likely to be healthy and free from defects at birth."

Collins-Williams, C.: Prevention of Disease, Ontario Med. Review, 20:166, March, 1953

To be sure of satisfying the OB patient's greatly increased nutritional requirements without increasing her caloric intake, supplementation is usually needed. OBRON supplies adequate amounts of Vitamins, Minerals and Trace Elements to meet her intensified demands during gestation and through lactation.

for the OB patient
all in one capsule

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Dicalcium Phos. Anhydrous	768 mg.*
Ferrous Sulfate U.S.P.	64.8 mg.
Vitamin A	5,000 U.S.P. Units
Vitamin D	400 U.S.P. Units
Thiamine Hydrochloride	2 mg.
Riboflavin	2 mg.
Pyridoxine Hydrochloride	0.5 mg.
Ascorbic Acid	37.5 mg.
Niacinamide	20.0 mg.
Calcium Pantothenate	3.0 mg.
Cobalt	0.033 mg.
Copper	0.33 mg.
Iodine	0.05 mg.
Manganese	0.33 mg.
Magnesium	1.0 mg.
Molybdenum	0.07 mg.
Potassium	1.7 mg.
Zinc	0.4 mg.

*Equivalent to 15 gr. Dicalcium Phosphate Dihydrate.

J. B. ROERIG AND COMPANY, CHICAGO 11, ILLINOIS

NEWS AND NOTES

—Concluded from page 102

Only those patients over 13 years of age and with general illness complaints were included in the study; complaints belonging to specialties other than internal medicine were referred to other practitioners. Only the initial visit to any patient with a medical complaint or to the same patient for a medical complaint unrelated to a chronic condition was counted.

"One of the most interesting facts to emerge from this study was the preponderance of female patients requiring residence visits," the doctors stated in the *A.M.A. Journal*. "The over-all percentage of female patients was 65.5 per cent, as compared to 34.5% for male patients."

Many of the patients requiring house calls were over 65 years of age, "emphasizing the importance of geriatric medicine."

As to the time of such calls, the doctors reported 325 visits between 7 a.m. and noon, 311 from noon to 6 p.m., 206 from 6 p.m. to 8 p.m., 111 from 8 p.m. to midnight, and 47 after midnight.

"In our discussion prior to embarking on this study, there was a universal cynicism about the urgency of the visit after midnight," they stated. "Yet in these 47 screened calls, 15, or 31.9 per cent, required a physician within four hours; one additional patient should have been seen within 12 hours.

The study also disclosed the drugs most needed to be carried in the doctor's bag included aspirin compounds, penicillin with or without streptomycin, sleep inducing compounds, barbiturates, cough syrup and opiates.

CONSTIPATION*

possibly the

greatest single medical problem

of the patient who is over **40**

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Because constipation in this age group is usually associated with indigestion and biliary stasis. Prescribe Caroid® and Bile Salts with Phenolphthalein to obtain these three beneficial actions:

choleretic action — for an increased flow of bile

digestant action — aids protein and fat digestion

laxative action — gentle laxation with minimal dosage

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*Rehfuss, M. E.: Indigestion, Philadelphia, W. B. Saunders Co., 1943, p. 322

CAROID® AND BILE SALTS *tablets*

Specifically indicated in biliary dyspepsia and constipation

in Geriatrics also...

NUMOTIZINE®

— for the welcome relief it offers
in an acute arthritis flare-up,
a bronchitis with painful coughing,
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or a painful contusion.

NUMOTIZINE is easy to apply.
A single application brings
prolonged comfort, lasting eight
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Employed adjunctively to the use of
antibiotics and chemotherapeutic
agents, NUMOTIZINE keeps the
patient comfortable while the
disease process is under attack.

FORMULA

Guaiacol	2.60
Beechwood Creosote	13.02
Methyl Salicylate	2.60
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Polyols and Aluminum Silicate q.s.	*1000 pts.*

Supplied in 4, 8, 15 and 30 oz. resealable glass jars.

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MEDICAL TIMES, NOVEMBER, 1953

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fast-acting salicylate formula

HIGH in analgesic power

LOW in risk to the patient

Recent studies[1,2] suggest that the time-tried salicylates exert a *hormonal* action similar to that of ACTH, stimulating release of cortisone.

Whenever rapid and sustained salicylate action is desired, **ELPAGEN** gives your patient the benefits of a *potentiated* salicylate combination in *uncoated* tablet form—without the gastric irritation of unmodified salicylates and without the potential dangers (or expense) of ACTH or cortisone itself.

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Each orange-colored, uncoated tablet provides:

Sodium salicylate	5 gr.	(325 mg.)	*POTENTIATED SALICYLATE BLOOD LEVELS*
Sodium para-aminobenzoate	3 gr.	(195 mg.)	
Salicylamide	½ gr.	(32.5 mg.)	

plus

Ascorbic acid 30 mg. (as sodium ascorbate)		*SAFEGUARD AGAINST VITAMIN C DEPLETION AND CAPILLARY HEMORRHAGE*
Dihydroxy aluminum aminoacetate	½ gr. (32.5 mg.)	BUFFERING ACTION *OVERCOMES GASTRIC INTOLERANCE*[3]

SUPPLIED in bottles of 100 and 500 tablets.

1. Van Cauwenberge, H.: Lancet 261:374, 1951; Van Cauwenberge, H., and Heusghem, C.: Proc. Soc. Exper. Biol. & Med. 80:51, 1952. 2. Pelloja, M.: Lancet 1:233, 1952. 3. Paul, W. D., et al.: J. Am. Pharm. A., Scient. Ed. 39:21, 1950.

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going deep

The "hyperkinemic" activity of Baume Bengué goes beneficially deep. It enhances blood flow *through the tissue area* in arthritis, myositis, muscle sprains, bursitis and arthralgia. As Lange and Weiner[1] determined by the use of thermo-needles, hyperkinemic effect may extend to a depth of 2.5 cm.

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Baume Bengué

ANALGESIQUE

1. Lange, K., and Weiner, D. J. Invest. Dermat. 12:263 (May) 1949.

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PHOTOGRAPH BY PAUL RADKAI

Exhausting cough didn't keep her awake

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ANTITUSSIVE

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METHAJADE is useful in treating paroxysmal cough associated with bronchitis, tracheitis, dry pleurisy, pulmonary cancer, asthma and certain hard-to-control post-surgical coughs.

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SUPPLIED: Pint Spasaver® and gallon bottles.

* Warning: may be habit-forming.